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Spokane Area Point Source PCB Survey May 2001

March 2002

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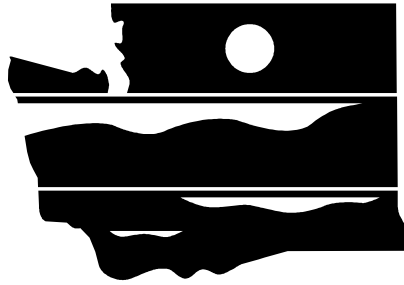
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Spokane Area Point Source PCB Survey May 2001

by
Steven Golding

Environmental Assessment Program
Olympia, Washington 98504-7710

March 2002

Waterbody Numbers WA-57-1010 and WA 54-1020

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Abstract

Samples from four dischargers to the Spokane River and one waste contributor to a wastewater treatment plant (WWTP) were analyzed for polychlorinated biphenyls (PCBs) and associated general chemistry parameters during May 2001:

- Kaiser Aluminum at Trentwood (industrial)
- City of Spokane WWTP (municipal)
- Inland Empire Paper (industrial)
- Liberty Lake WWTP (municipal)
- Spokane Industrial Park wastewater to the Spokane WWTP (industrial to municipal)

A recently developed low-level method was used to analyze PCBs in all 209 possible congener forms in 159 groupings at practical quantitation limits, ranging from 76 pg/L to <1 pg/L. PCBs were also analyzed as Aroclor-equivalents in sludge samples from two of the facilities.

Samples from Spokane Industrial Park wastewater were found to have the highest concentrations of total PCBs (8,240 pg/L). Spokane Industrial Park contributes wastewater to the Spokane WWTP.

Of the four facilities discharging directly to the Spokane River, Kaiser Trentwood was found to have the highest total PCB concentration (7,670 pg/L). Inland Empire Paper, Spokane WWTP, and Liberty Lake WWTP samples were found to have total PCB concentrations of 2,440 pg/L, 1,790 pg/L, and 1,730 pg/L, respectively. These total concentrations are means of two grab samples collected on two consecutive days, with the exception of Inland Empire Paper for which a single grab sample was collected. Because total PCB concentrations were calculated by summing congeners, some of which were estimated values, they should be considered estimates.

Estimated loadings of total PCBs to the Spokane River during the survey were highest from Kaiser Trentwood and the Spokane WWTP (means of 0.48 g/day and 0.26 g/day, respectively). The estimated Kaiser loadings exceeded the combined loadings of all other sources monitored.

Total PCBs in the Kaiser effluent were lower in these survey samples than in samples collected in 1994 and 1995. Kaiser's efforts in recent years to clean up facility-related PCBs, and their use of a polymer flocculant during the survey sampling period, may have reduced PCB concentrations in the effluent.

Acknowledgements

The author would like to thank the following individuals for their help with this study:

- Katharine Kaye, Quality Assurance Chemist with AXYS Analytical Services Ltd., for discussing the AXYS method for estimating Aroclor-equivalent concentrations from congener data.
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 - Stuart Magoon for leading the way in researching state-of-the-art PCB congener analyses and the interpretation of results, and for acting as liaison with AXYS Analytical Services.
 - Karin Feddersen for investigating methods for estimating PCB Aroclor-equivalents, calculating estimated concentrations of PCB-1248, and performing data review of congener data.
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Background

Polychlorinated biphenyls (PCBs) were once used in a variety of applications including insulating fluids, plasticizers, in inks and carbonless paper, and as heat transfer and hydraulic fluids. PCBs were first detected in the Spokane River in fish samples collected by the U.S. Environmental Protection Agency (EPA) and the Washington State Department of Ecology (Ecology) from 1978-1983 (Bailey and Singleton, 1984; Joy, 1984; Hopkins et al., 1985).

A study conducted in 1993 showed significant contamination of sediment and fish collected from five reaches of the Spokane River (Johnson et al., 1994). This prompted an investigation of PCBs in fish tissue, sediments, as well as industrial and municipal sources of PCBs to the Spokane River (Toxics Investigations Section, 1995). Further studies have included monitoring of PCBs from Spokane area point sources (Toxics Investigations Section, 1995; Golding, 1996; Golding, 2001).

PCBs can be analyzed as equivalent concentrations of commercial Aroclor mixtures or as individual PCB compounds called congeners. Aroclors are broad groupings of PCB mixtures designated by manufacturers before PCB production was banned by the EPA in 1979 (Toxics Investigations Section, 1995). In the past, Ecology has analyzed PCBs in wastewaters and other environmental samples as Aroclor-equivalents rather than as congeners. PCBs in the environment often appear as altered mixtures of Aroclors bearing little resemblance to the original products. PCBs in the environment that were originally various Aroclors weather and metabolize, making the identification and quantification of specific Aroclor mixtures in environmental samples uncertain in many cases.

Congeners are the 209 constituent chemical forms comprising PCBs. A numbering system has been adopted by the scientific community, with the 209 congeners ordered by number of chlorine atoms present and positioning of the chlorine atoms on the two benzene rings which form the structure of PCB compounds.

Previous analyses of whole wastewater effluent samples for PCBs as Aroclor-equivalents or congeners have been limited by the sensitivity of available analytical methods and equipment. A low-level analytical method published by the EPA in 1999 can now reliably quantify individual and grouped PCB congeners in whole-water samples. In addition, this congener analysis provides detailed information of the chemical constituents of PCBs in their basic congener forms. Of the 209 congener forms in PCBs, the analysis for this project reports all of these as 159 congeners/congener groupings.

With recently developed analytical techniques to identify a large suite of congeners at low levels, congener-specific methods are becoming preferred for PCB analyses where low quantitation limits are desired and/or where Aroclor-equivalent identification and quantification, a subjective process, would lead to uncertain results. Congener-specific analyses may have the potential for identifying signatures of PCBs from sources and in the environment. They also have the potential for accurately predicting sample toxicities (Sather et al., 2001).

Study Objectives

The objective of this survey, conducted on May 1 and 2, 2001, was to assess the presence and concentrations of PCBs in effluent sources discharging directly to the Spokane River. In addition, wastewater contributions from the Spokane Industrial Park to the Spokane WWTP were assessed for PCBs. Spokane Industrial Park operated a wastewater plant discharging to the river prior to 1994. Locations of the five sources sampled are shown in Figures 1-5.

The point sources monitored in this study were:

- Kaiser Aluminum at Trentwood (001 outfall) final effluent
- City of Spokane WWTP final effluent and sludge
- Inland Empire Paper final effluent
- Liberty Lake WWTP final effluent and sludge
- Spokane Industrial Park wastewater to the Spokane WWTP

Estimates are made of PCB loadings to the Spokane River at the time of the survey. Results from this study are compared with data from previous Ecology monitoring of point sources in the Spokane area. A discussion of estimating Aroclor-equivalents from congener analyses is included.

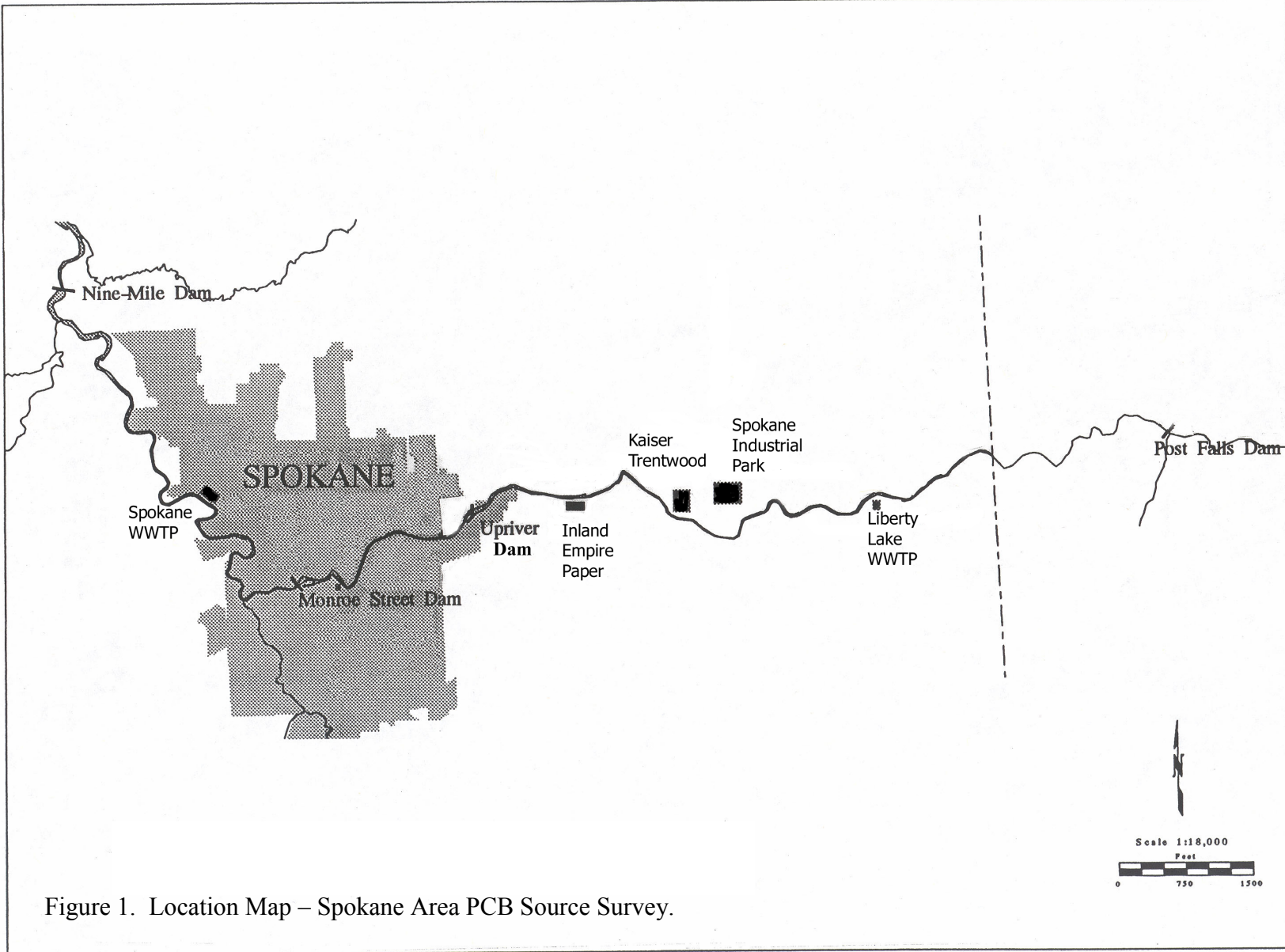


Figure 1. Location Map – Spokane Area PCB Source Survey.

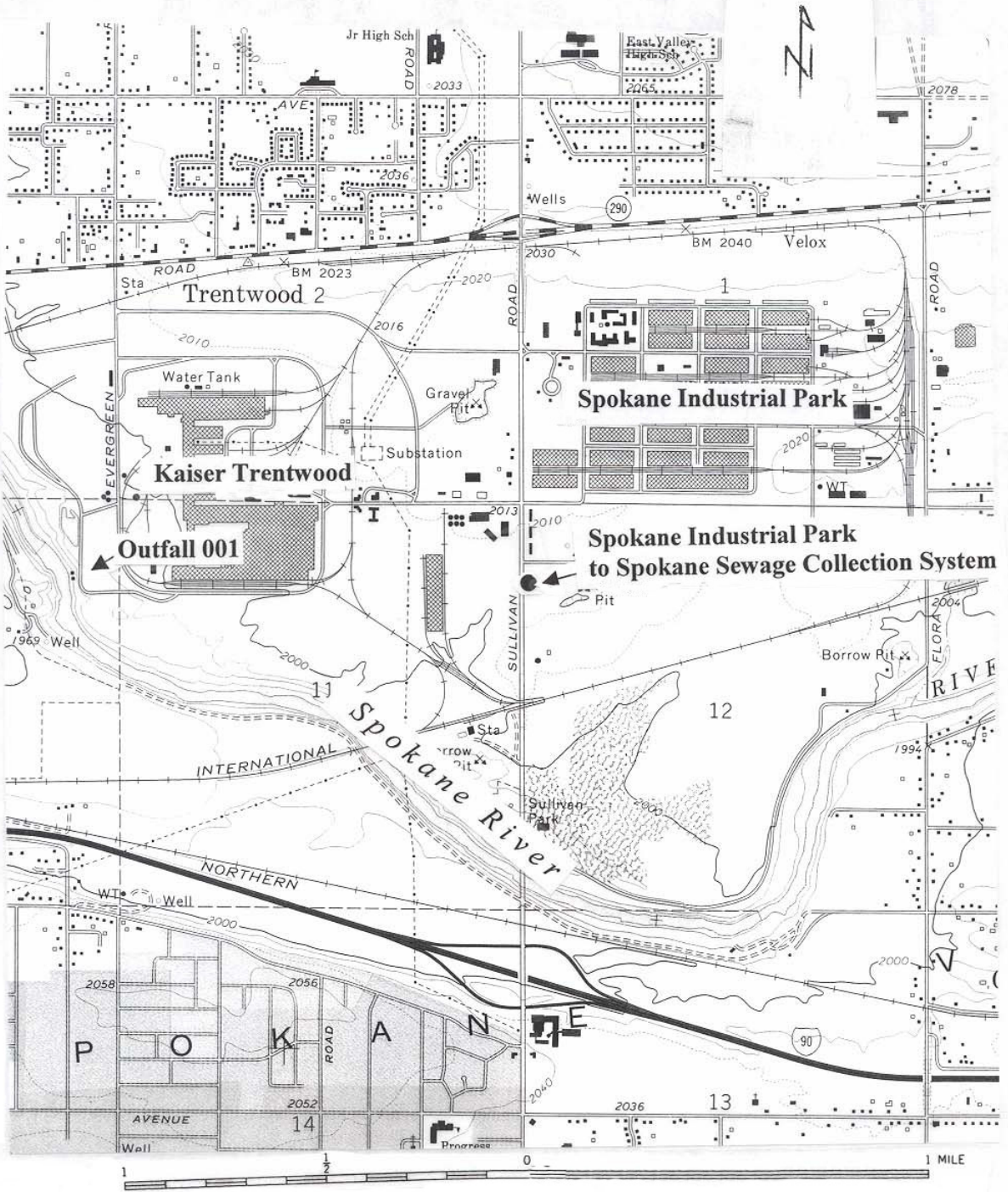


Figure 2. Location Map – Kaiser Trentwood and Spokane Industrial Park.

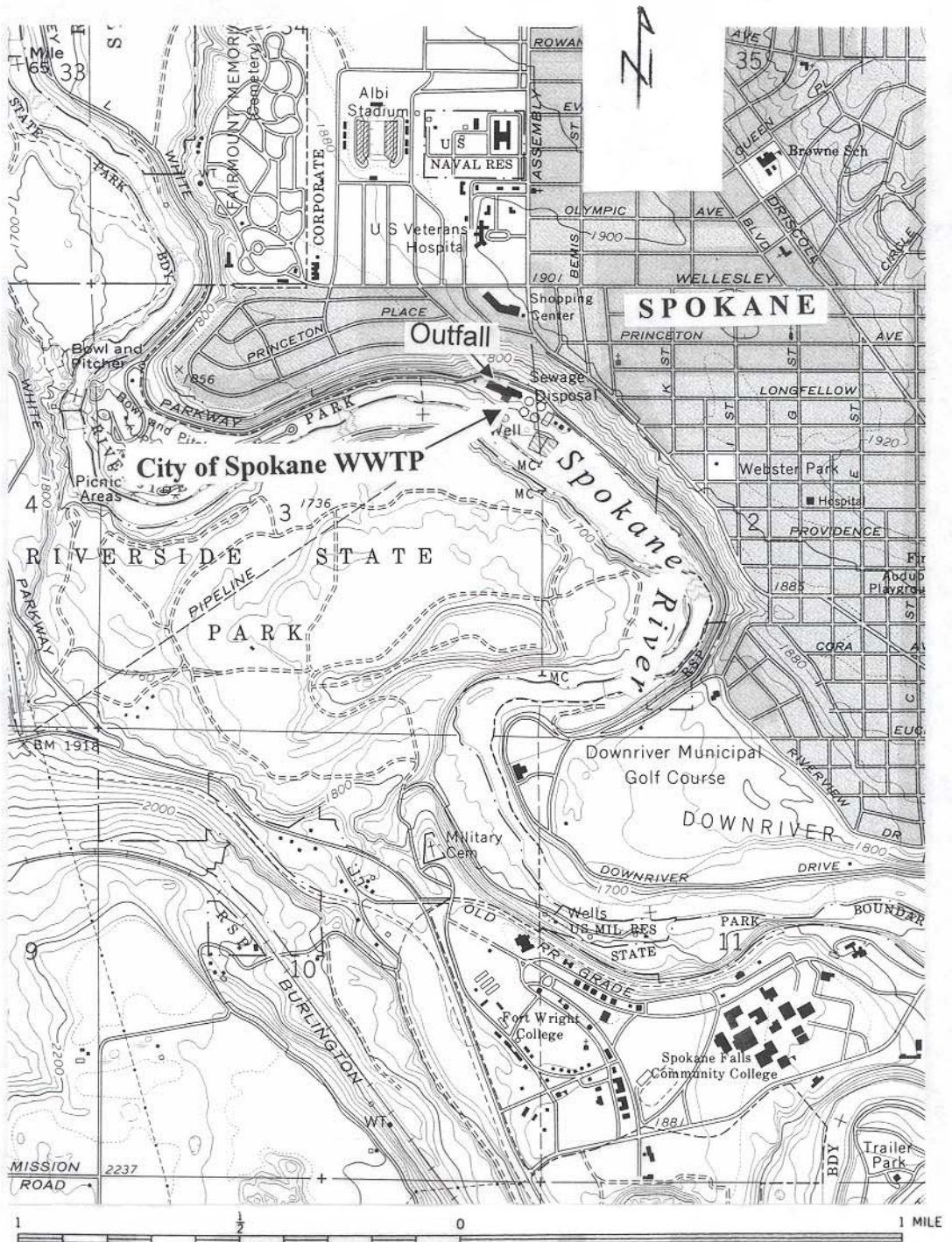


Figure 3. Location Map – City of Spokane Wastewater Treatment Plant.

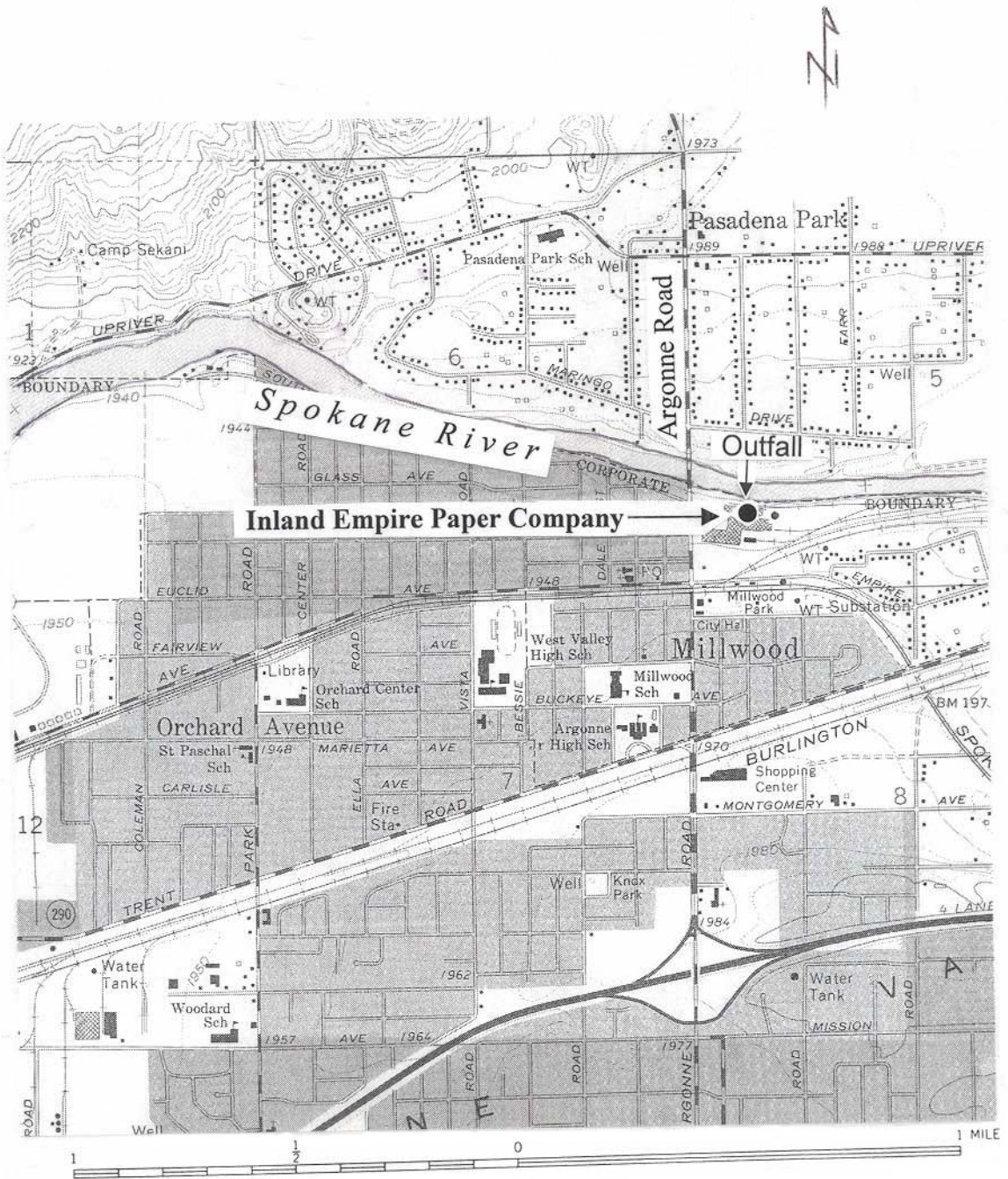


Figure 4. Location Map – Inland Empire Paper Company.

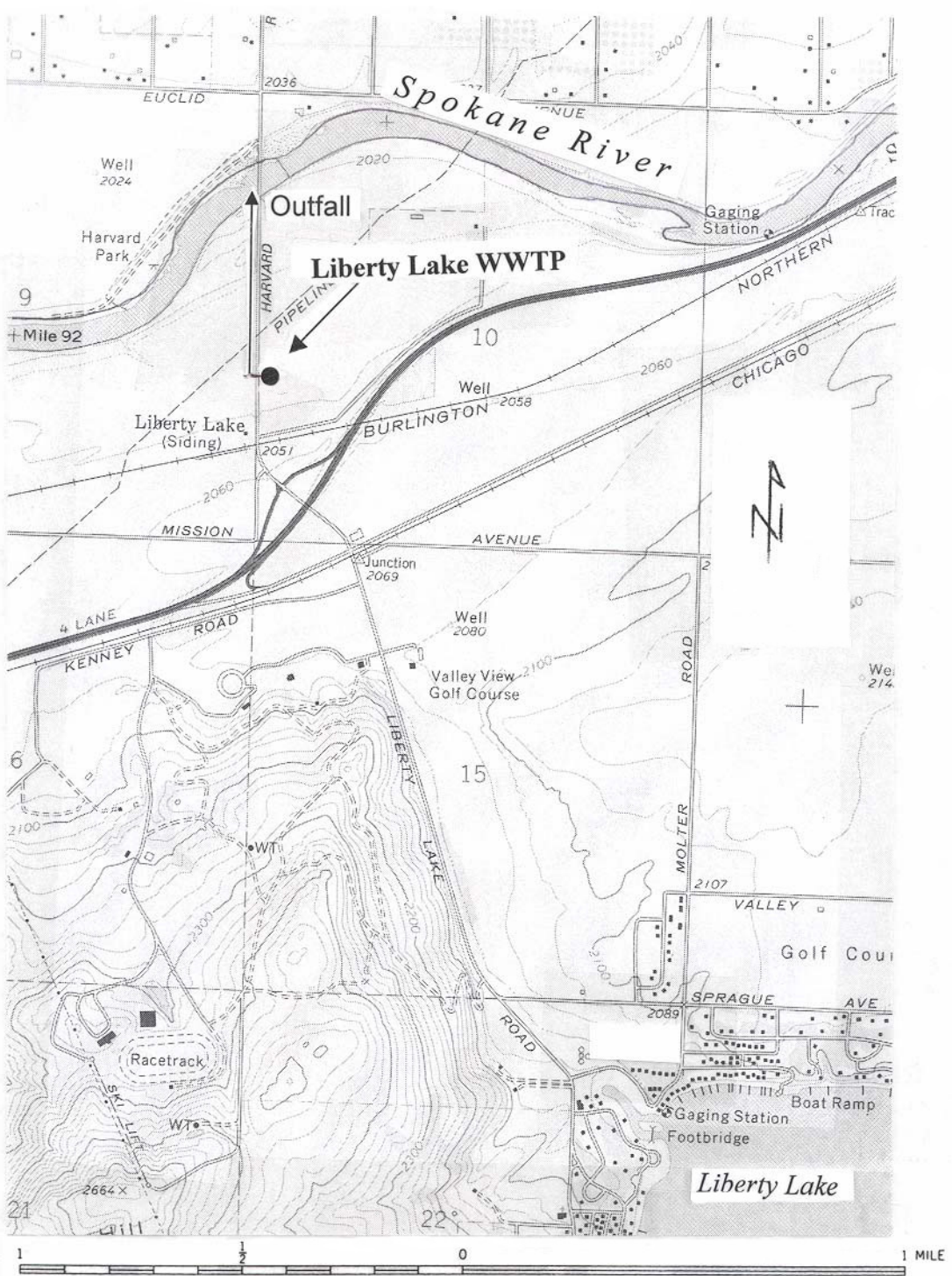


Figure 5. Location Map – Liberty Lake Wastewater Treatment Plant.

Sample Collection Methods

Sampling was conducted on May 1 and 2, 2001. Two whole-effluent/wastewater grab samples were collected at each facility, one on each of two consecutive days. The exception was Inland Empire Paper, for which a single grab sample was collected. Automatic compositing samplers were not used for this screening study because of the potential for contamination at the low levels of PCBs being analyzed. The large geographical area of the survey made collecting grab-composite samples impractical.

Effluent and wastewater samples were collected directly in pre-cleaned glass jars provided by AXYS Analytical Services. At Inland Empire Paper and Kaiser Trentwood, jars were held with powder-free nitrile gloves during sampling, with the jar openings facing upstream. At other locations, samples were collected by attaching the jars to poles and positioning the poles downstream of the sample jars. Lids were removed from the laboratory-cleaned glass sample jars just prior to sample collection and replaced immediately thereafter. A transfer blank was collected at Kaiser Trentwood by pouring deionized water supplied by AXYS into a sample bottle.

Sludge samples were obtained by collecting dried sludge directly into laboratory-cleaned wide-mouth jars. Sludge from the Spokane WWTP was collected as two samples from a belt filter press. Sludge from Liberty Lake WWTP was collected as one sample from a dried sludge drying bed and one sample from a partially-dried bed.

Total suspended solids (TSS), conductivity, and total organic carbon (TOC) were obtained by laboratory analyses of grab samples. Discharge flows were provided by facility personnel.

All samples were placed on ice in ice chests and maintained under chain-of-custody procedures.

Analytical Procedures and Methods

Effluent and wastewater samples were analyzed for low-level PCB congeners, rather than PCB Aroclor-equivalents as in previous Ecology monitoring efforts. The method used has been known to achieve low practical quantitation limits in receiving waters (Magoon, 2001). Sludge samples were analyzed as Aroclor-equivalents.

The Ecology Manchester Environmental Laboratory contracted congener analyses to AXYS Analytical Services Ltd. Manchester performed quality assurance and quality control verification of the data. Congener analyses were conducted in accordance with EPA method 1668A to achieve state-of-the-art resolution and detection limits. This high resolution gas chromatography mass spectrometry (GCMS) technique is an isotope dilution method, which provides internal standards for each congener. Labeled surrogates are added before samples are extracted, data from each sample are recovery corrected for losses in extraction and clean up, and analytes are quantified against similarly labeled analogues. PCB Aroclor-equivalent analyses based on EPA Method 8082A, by contrast, use an external standard with only limited spike samples and surrogates.

Sludge samples were extracted for Aroclor-equivalent analyses into acetone by Soxhelt extraction. The method is a modification of EPA SW-846 methods 3540, 3550, 3620, 3625, and 8082. The Aroclor-equivalent analyses were performed by Manchester Environmental Laboratory.

Data Quality Objectives

The practical quantitation limit (PQL) in an Aroclor-equivalent analysis is generally too high to quantify PCB concentrations in whole-effluent samples. In most instances, Aroclor-equivalent analyses can achieve a PQL only as low as 500 pg/L. Recently developed low-level analytical methods to determine PCB congener concentrations can provide expected PQLs as low as 20 pg/L. With this sensitivity, it was anticipated that PCB congeners in wastewater effluents could be evaluated at concentrations considerably lower than in previous Ecology sampling efforts.

AXYS Analytical Services Ltd. has achieved a method detection limit of 5-20 pg/L in freshwater. With the potential for matrix interference from the wastewater samples, 200 pg/L or lower was set as a target quantitation limit for the effluent/wastewater samples of this study (Magoon, 2001). This quantitation limit was considered low enough to quantify concentrations of PCBs.

For the Aroclor-equivalent analysis of sludge samples, a target PQL of 50 ug/Kg-dw (ppb dry weight) was set, based on previous experience (Magoon, 2001). In a 1994 Ecology study of solids from five wastewater-producing facilities in the Spokane area, all were found to have PCB-1248 in concentrations of 84 µg/Kg-dw or higher. Sludges from the Spokane and Liberty Lake WWTPs were found to have PCB-1248 concentrations of 220 µg/Kg-dw or higher (Golding, 1996). A quantitation limit of 50 µg/Kg-dw was considered to be sufficiently low for the analysis of sludge from these two facilities.

Quantitation Limits and Data Quality

The target PQL of 200 pg/L for the PCB congener analyses was met. Quantitation limits of 76 to <1 pg/L were achieved in the effluent/wastewater samples. Some congener group values were qualified as “NJs” because they exceeded quantification criteria for acceptable isotope ratios. Some values fell below the lowest concentration in the calibration series and, since linear interpolations could not be made, were below the lower method calibration limit (LMCL) and are qualified as “J” (Lusznik, 2002).

Twenty-six selected congeners in a sample of Spokane WWTP effluent (188185) were spiked to 100 pg/L. The absolute values of the deviations from 100% recovery had a mean of 1.6%. This is a small deviation relative to the control limits of 50% - !50% for Aroclor-equivalent EPA Method 8082.

The target quantitation limit of 50 µg/Kg for Aroclor-equivalents of sludge samples was not met as a result of matrix interferences. However, the limits achieved allowed for the quantitation of PCB-1248, -1254, and -1260 Aroclor-equivalents in most sludge samples.

Quality Assurance and Quality Control (QA/QC) Case Narratives are included in Appendix A.

Results

Results of the low-level congener analyses of final effluents from the four facilities discharging to the Spokane River, as well as wastewater from the Spokane Industrial Park (SIP), are summarized in Table 1. Total PCB congeners were calculated as the sum of all values, including those qualified as estimates. Non-detects were not included in total PCB congener calculations. Because some of the congener groupings included in the sums were estimated values, total PCB concentrations should be regarded as estimates. Complete congener data are shown in Appendix B. Daily average effluent flow for the discharges from the facilities was represented by flows measured for a 24-hour interval during the monitoring period, as reported by facility personnel.

Table 1. Effluent Data Summary.

	Lab Blank	Transfer Blank	Kaiser Trentwood Sample 1	Kaiser Trentwood Sample 2	Spokane WWTP Sample 1	Spokane WWTP Sample 2
Lab Log #		188191	188183	188187	188180	188185
Sample Date	-	5/2/01	5/1/01	5/2/01	5/1/01	5/2/01
Time:		1305	1320	1140	0835	0820
Total PCB Congeners (pg/L)*	128	3	10,170	5,170	1,810	1,770
			7,670 (avg.)		1,790 (avg.)	
Flow (MGD)**	-	-	16.4		37.6	
TSS (mg/L)			4	4	4	5
Cond. (umhos/cm)			283	292	537	661
TOC			1.7	1.7	6.0	6.3

	Inland Empire Paper Sample 1	Liberty Lake WWTP Sample 1	Liberty Lake WWTP Sample 2	Spokane Industrial Park Sample 1	Spokane Industrial Park Sample 2
Lab Log #	188181	188184	188188	18818	188185
Sample Date	5/1/01	5/1/01	5/2/01	5/1/01	5/2/01
Time:	1010	1255	1325	1115	1020
Total PCB Congeners (pg/L)*	2,440	1,920	1,540.	9,370	7,110
		1,730 (avg.)		8,240 (avg)	
Flow (MGD)**	4.3	0.649		(not measured)	
TSS (mg/L)	9	18	17	96	120
Cond. (umhos/cm)	933	526	522	653	553
TOC (mg/L)	25.0	6.9	7.4	48.9	39.2

1,000 pg/L = 1 ng/L = 0.001µg/L

MGD – million gallons per day

TSS – total suspended solids

Cond. – conductivity

TOC – total organic carbon

* estimated values

** Kaiser Trentwood flow measured 7AM May 2 to 7AM May 3.

Spokane WWTP flow measured midnight May 1 to midnight May 2.

Inland Empire Paper flow measured 7AM May 1 to 7 AM May 2.

Liberty Lake WWTP flow measured 10 AM May 2 to 10 AM May 3.

PCB concentrations in the laboratory blank and field transfer blank (128 pg/L and 3 pg/L, respectively) were low relative to the effluent and wastewater samples. An upper limit for the transfer blank, 220 pg/L, was calculated by summing all measured and non-detected values as measured values. These low blank PCB concentrations indicate a lack of significant contamination in sample transfer and laboratory analyses.

Total PCB concentrations in effluents from the Spokane WWTP, Inland Empire Paper, and Liberty Lake WWTP were between 1,500 pg/L. and 2,500 pg/L.

The two municipal WWTPs were discharging similar PCB concentrations, with a mean concentration ranging between 1,700 pg/L and 1,800 pg/L. The Spokane WWTP showed less variability than Liberty Lake, consistent with the averaging effect of higher contributing flows and greater detention times of a large city collection system and treatment facility. The single grab sample of Inland Empire Paper effluent had a PCB concentration of 2,440 pg/L, approximately 40% higher than those of the municipal WWTPs.

Spokane Industrial Park wastewater, though not discharging directly to the Spokane River, showed relatively high total PCB concentrations (7,110 pg/L, 9,370 pg/L).

Variability between pairs of sample results can be described in terms of relative percent difference (RPD). RPD is the difference between results as expressed as a percentage of the average. The RPDs for total PCBs in the Spokane and Liberty Lake effluents were 2% and 22%, respectively. Spokane Industrial Park, despite its relatively low wastewater flow and lack of equalizing treatment facilities, was found to have an RPD of 27%. These low RPDs suggest that a sample size of two per facility was adequate to characterize the effluents and wastewaters at the time of sampling at a level appropriate for a screening analysis.

The Kaiser Trentwood discharge showed high but variable total PCB concentrations, with 10,174 pg/L in one sample and approximately half that concentration, 5,165 pg/L, in the second sample. At the time these samples were being collected, Kaiser reported that the ferric system used to promote solids settling in the final lagoon had stopped working the week before sampling but that polymer was now being added to correct the problem (Blau, 2001). The RPD between the two Kaiser grab samples was 65%, considerably higher than those from the other facilities. This relatively high variability in PCB concentrations between the Kaiser effluent samples collected on consecutive days suggests non-steady state treatment conditions at the time of the survey.

Results of the effluent, wastewater, and transfer blank congener-group analyses are shown as histograms in Figure 6. In the histograms, each of the 209 congeners is represented by a plotted value. Because the laboratory method reported only 159 congeners or groupings of congeners, it was not possible to create histograms showing precise values of each congener. Since the distribution of congeners among a congener group is unknown, values were apportioned equally among the congeners in a group. For example, each congener of a group of four congeners with an overall value of 42.5 pg/L was plotted as 1/4 of that value (10.6 pg/L).

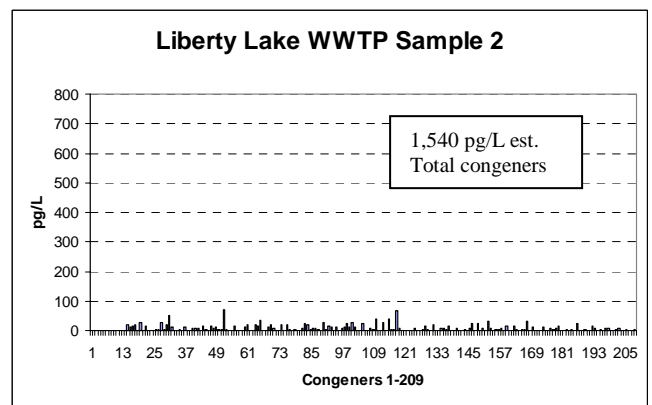
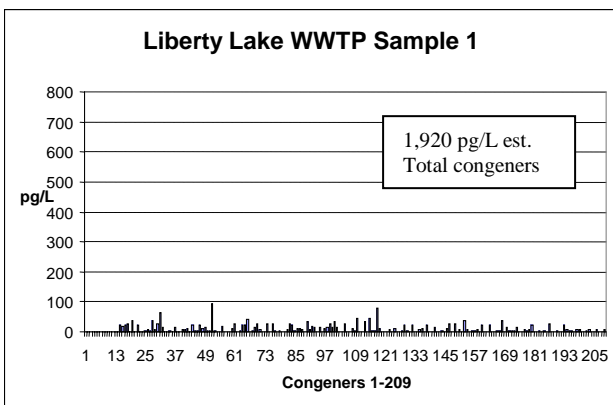
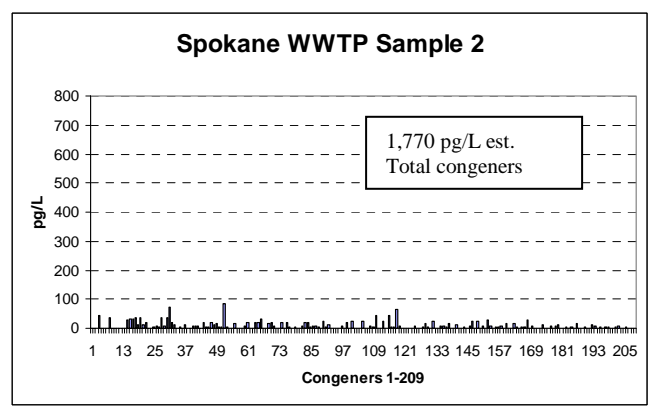
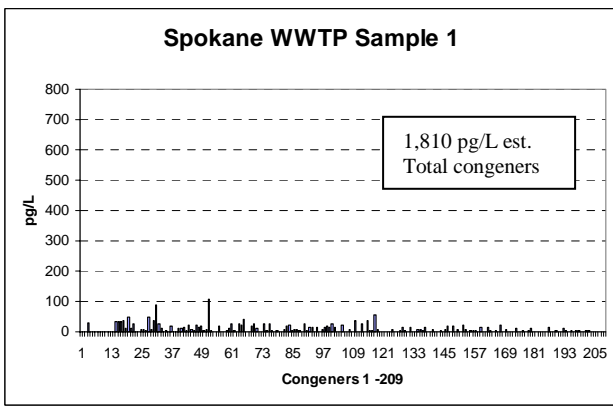
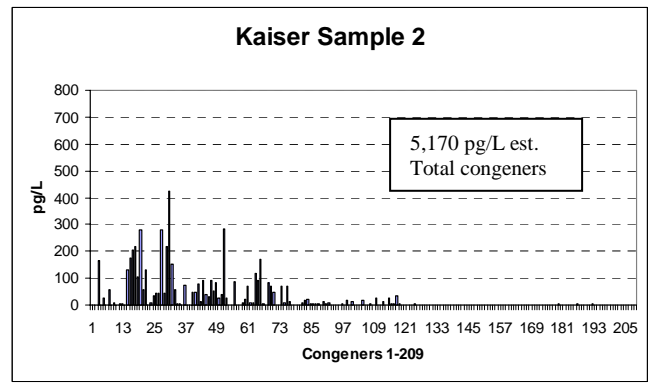
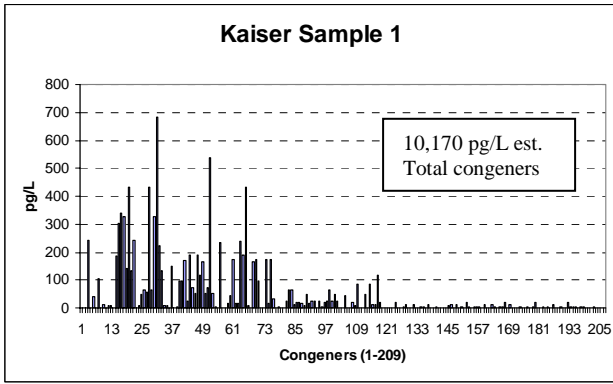


Figure 6. PCB Congener Distributions in Effluent and Wastewater Samples.

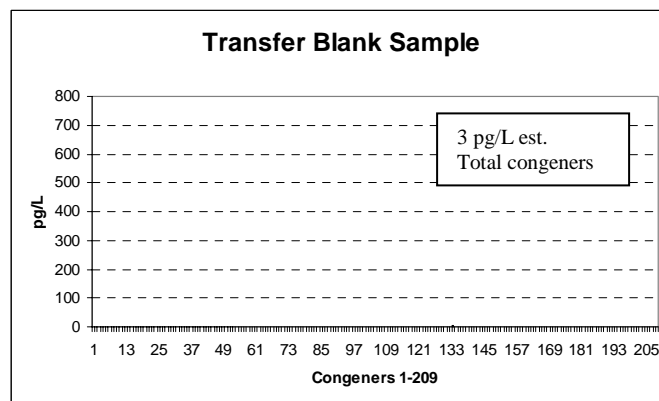
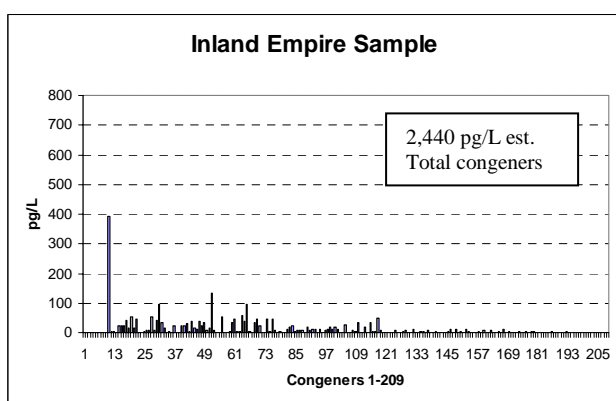
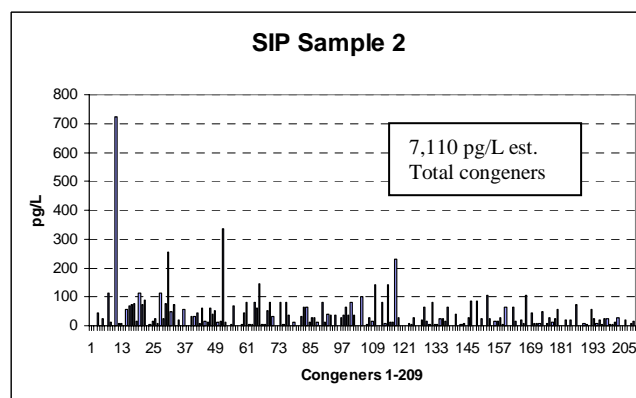
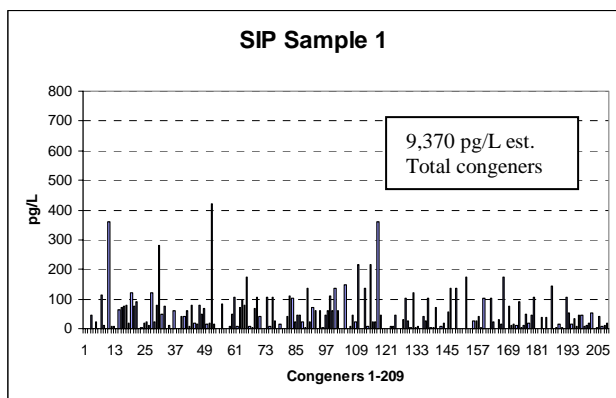


Figure 6 (cont.). PCB Congener Distributions in Effluent and Wastewater Samples.

The histograms show a similar pattern for Spokane and Liberty Lake WWTPs. Kaiser and Spokane Industrial Park (SIP) each have distinct patterns. Little difference is evident in the patterns from consecutive grab samples from each facility.

Results of the Aroclor analyses conducted on Spokane WWTP and Liberty Lake WWTP sludge samples are shown in Table 2.

Table 2. Sludge Data Summary.

	Lab Method Blank	Spokane WWTP Sample 1*	Spokane WWTP Sample 2*	Liberty Lake WWTP Sample 1**	Liberty Lake WWTP Sample 2**
Lab Log #	--	188189	188192	188190	188193
Sample Date	--	5/2/01	5/2/01	5/2/01	5/2/01
Aroclor-equivalent					
PCB-1016 µg/Kg-dw	110 U	130 U	130 U	470 U	110 U
PCB-1221 µg/Kg-dw	110 U	130 U	130 U	470 U	110 U
PCB-1232 µg/Kg-dw	110 U	130 U	130 U	470 U	110 U
PCB-1242 µg/Kg-dw	110 U	130 U	130 U	470 U	110 U
PCB-1248 µg/Kg-dw	56 U	61 NJ	87	230 U	51 NJ
PCB-1254 µg/Kg-dw	56 U	99	150	230 U	67 NJ
PCB-1260 µg/Kg-dw	56 U	35 J	46 J	230 U	56 U
Total PCBs µg/Kg-dw	--	195 J	283 J	ND	118 NJ
Solids (%)	--	15.8	18.2	4.5	26.6
TVS (%)	--	9.0	10.4	3.5	16.8
TOC (% carbon)	--	30.2	29.6	39.6	38.3

* Sludge samples from belt filter press

TVS – total volatile solids

** Sludge samples from sludge drying beds

TOC – total organic carbon

NJ - There is evidence the analyte is present. Associated numerical value is an estimate.

J - Analyte was positively identified. Associated numerical result is an estimate.

U- Analyte was not detected at or above the reported estimated result.

ND – non-detect

PCB-1248, -1254, and -1260 were found in sludges from both of these municipal WWTPs, with PCB-1254 being at the highest concentrations. Spokane sludge had higher total estimated PCB concentrations (195 µg/Kg-dw and 283 µg/Kg-dw) than Liberty Lake sludge (118 µg/Kg-dw).

Estimated PCB Loadings to the Spokane River

Total estimated PCB loadings to the Spokane River during the time of the survey appear in Table 3, calculated based on total PCB concentrations (total congeners) and point source flow rates (Table 1). Table 3 shows loadings from highest to lowest, with Kaiser Trentwood having the highest average loading (0.48 g/day).

Table 3. Estimated PCB Loadings to the Spokane River.

Source	Sample (2001)	Estimated Loading g/day	Average Loading g/day
Kaiser Trentwood 001	1 (May 1)	0.63	0.48
	2 (May 2)	0.32	
Spokane WWTP	1 (May 1)	0.26	0.26
	2 (May 2)	0.25	
Inland Empire Paper	(May 1)	0.040	0.040
Liberty Lake WWTP	1 (May 1)	0.0047	0.0042
	2 (May 2)	0.0038	

The estimated loading of total PCBs from Kaiser Trentwood on the day of its lowest loading (0.32 g/day on May 2) was higher than the estimated highest loading from all other sources combined (0.31 g/day on May 1). PCB loadings from Kaiser were estimated to be more than twice that of the next highest loading contributor, the Spokane WWTP, on the first day of monitoring (May 1) and 28% higher on the second day (May 2).

Loadings to the river from the Spokane Industrial Park (SIP) discharge to the Spokane WWTP could not be calculated, because the discharge is treated at the WWTP. SIP does not have a means of measuring wastewater flow. The flow appeared to be relatively low, in the sub-MGD range. In 1992 when SIP operated a WWTP, the flow averaged 0.6 MGD during an Ecology Class II Inspection (Hoyle-Dodson, 1993).

Estimating Aroclor-Equivalent Concentrations from Congener Data

In this screening study, PCBs were analyzed as congeners. The results are not directly comparable to the PCB Aroclor-equivalent results for wastewaters and associated solids in previous Ecology studies. A number of methods have been suggested to estimate Aroclor-equivalent concentrations from congener data (Newman et al., 1998; Frame et al., 1996).

Because there is considerable overlap in congener composition between Aroclor-equivalents (Sather et al., 2001), attempts to estimate Aroclor-equivalent concentrations from congener analyses tend to be less than successful when several Aroclors are suspected to be present (Feddersen, 2001; Kaye, 2002). Samples such as the effluents, wastewaters, and sludges of this study, and environmental samples in general, may have congener distributions that resemble more than one Aroclor. In addition, weathering and metabolic processes have altered the forms of PCBs found since Aroclor production was halted over 20 years ago (Sather et al., 2001).

Estimates of PCB Aroclor-equivalent concentrations from the congener data obtained in this survey are shown in Table 4. These estimates are based on a simplified method developed by AXYS Analytical Services Ltd. Using Aroclor standards of known concentrations, congeners unique to each Aroclor or most pronounced are summed and the result multiplied by a factor to yield the known Aroclor concentrations of the standards. The data and formulas used to develop these estimates appear in Appendix C.

As shown in Table 4, the total of the three Aroclor-equivalents for each sample, with the exception of Inland Empire, are higher than the total PCB congeners as summed from the 159 congener groups (Table 1) by an average of 21%. These estimates and Aroclor-equivalent data in general tend to overstate PCB concentrations, because Aroclor-equivalents share congeners and often overlap to some extent (Sather et al., 2001). With sufficient data, correlations between Aroclor-equivalent and congener-specific data have been made for selected tissue samples (Sather et al., 2001).

While AXYS provided estimates of Aroclor-equivalents from congener-specific data, the Aroclor-equivalent estimates are intended as a rough indication only, with totals approximating the more accurate totals obtained by summing congener group results (Phillips, 2002). When more than one Aroclor-equivalent appears to be evident but individual Aroclor-equivalents cannot be readily identified, AXYS routinely estimates PCB Aroclor-equivalents in terms of PCB-1242, -1254, and -1260. Aroclor 1248 is implicitly included in the estimates of PCB-1242 and -1254 in these rough estimates (Phillips, 2002).

Table 4. Aroclor-equivalent Estimates Based on Congener Proportions – AXYS Analytical Services Method.

Aroclor-equivalent	PCB-1242	PCB-1254	PCB-1260	Total PCBs from Aroclor-equiv Estimates
	(pg/L)	(pg/L)	(pg/L)	(pg/L)
Kaiser Trentwood 1 188183	8770 NJ	2520 NJ	392 NJ	11,682 NJ
Kaiser Trentwood 2 188187	5595 NJ	704 NJ	28.7 NJ	6,328 NJ
Spokane WWTP 1 188180	1032 NJ	888 NJ	201 NJ	2,121 NJ
Spokane WWTP 2 188185	977 NJ	920 NJ	335 NJ	2,232 NJ
Inland Empire Paper 188181	1119 NJ	875 NJ	102 NJ	2,096 NJ
Liberty Lake WWTP 1 188184	775 NJ	1164 NJ	469 NJ	2,408 NJ
Liberty Lake WWTP 2 188188	596 NJ	975 NJ	393 NJ	2,781 NJ
Spokane Ind. Park 1 188182	3021 NJ	4950 NJ	2619 NJ	10,590 NJ
Spokane Ind. Park 2 188185	2835 NJ	2990 NJ	1418 NJ	7,248 NJ
Transfer Blank 188191	101 UJ	45 UJ	19 J	19 J

* AXYS does not quantify PCB-1248 when several Aroclor-equivalents are present. PCB-1248 estimates were calculated by Manchester Laboratory.

bold – detected analyte

NJ - There is evidence the analyte is present. Associated numerical result is an estimate.

UJ – Analyte was not detected at or above the reported estimated result.

J - Analyte was positively identified. Associated numerical result is an estimate.

As discussed in the following section of this report, PCB-1248 has been identified in historic Ecology Manchester Laboratory analyses of Kaiser Trentwood effluent and municipal WWTP sludges. For this reason, Manchester used the AXYS Aroclor-equivalent estimation technique to calculate values of PCB-1248, as shown in Appendix C (Feddersen, 2001). The estimated PCB-1248 values are as large as the Aroclor-equivalents estimated by AXYS. This, and the historic finding by Ecology of PCB-1248 and no other Aroclor-equivalents in the Kaiser effluent, support the view that the AXYS Aroclor-equivalent estimating method should not be regarded as indicating the presence of specific Aroclor-equivalents for the survey samples. Also, because PCB-1248 is included in the AXYS estimates of PCB-1242, -1254, and -1260, estimates of PCB-1248 cannot be compared with the other Aroclor-equivalents in Appendix C. (Phillips, 2002).

Comparison with Historic Data

Total PCBs, as determined in this study by summing congeners, are compared with historic data in Table 5, Figure 7, and Table 6. The historic data summarized in these tables have been published in previous Ecology reports (Toxics Investigations Section, 1995; Golding, 1996). PCBs from centrifuged solids from the Kaiser Trentwood outfall also have been analyzed by Ecology several times since 1990. Centrifuged solids results are not included in this report, because they are not comparable with whole effluent results.

Table 5. Summary of Historic Spokane Area PCB Point Source Data – Effluent and Wastewater Samples (pg/L).

Source	Lab#	Date	Method	Total PCBs*	Identified Aroclor
Kaiser Trentwood	188183	05/01/01	congener	10,174 NJ	NA
Kaiser Trentwood	188187	05/02/01	congener	5,165 NJ	NA
Kaiser Trentwood	338080	08/14/00	Aroclor	53,000	PCB-1248
Kaiser Trentwood	338081	08/14/00	Aroclor	900 U	NA
Kaiser Trentwood	338085	08/15/00	Aroclor	900 U	NA
Kaiser Trentwood	338086	08/15/00	Aroclor	25,000	PCB-1248
Kaiser Trentwood	488155	12/05/95	Aroclor	29,000	PCB-1248
Kaiser Trentwood	488156	12/05/95	Aroclor	34,000	PCB-1248
Kaiser Trentwood	488160	12/06/95	Aroclor	25,000	PCB-1248
Kaiser Trentwood	488161	12/06/95	Aroclor	29,000	PCB-1248
Kaiser Trentwood	318155	08/01/94	Aroclor	21,000	PCB-1248
Spokane WWTP	188180	05/01/01	congener	1,813 NJ	NA
Spokane WWTP	188185	05/02/01	congener	1,767 NJ	NA
Inland Empire Paper	188181	05/01/01	congener	2,436 NJ	NA
Liberty Lake WWTP	188184	05/01/01	congener	1,917 NJ	NA
Liberty Lake WWTP	188188	05/02/01	congener	1,543 NJ	NA
Spokane Industrial Park	188182	05/01/01	congener	9,371 NJ	NA
Spokane Industrial Park	188186	05/02/01	congener	7,108 NJ	NA
Spokane Industrial Park	318157	07/31/94	Aroclor	9,000 U	NA
Spokane Industrial Park	318179	08/04/94	Aroclor	31,000 U	NA

Bold - Analyte detected

NJ - There is evidence that the analyte is present. Associated numerical result is an estimate.

U - Analyte not detected at or above the reported value.

NA – Not applicable

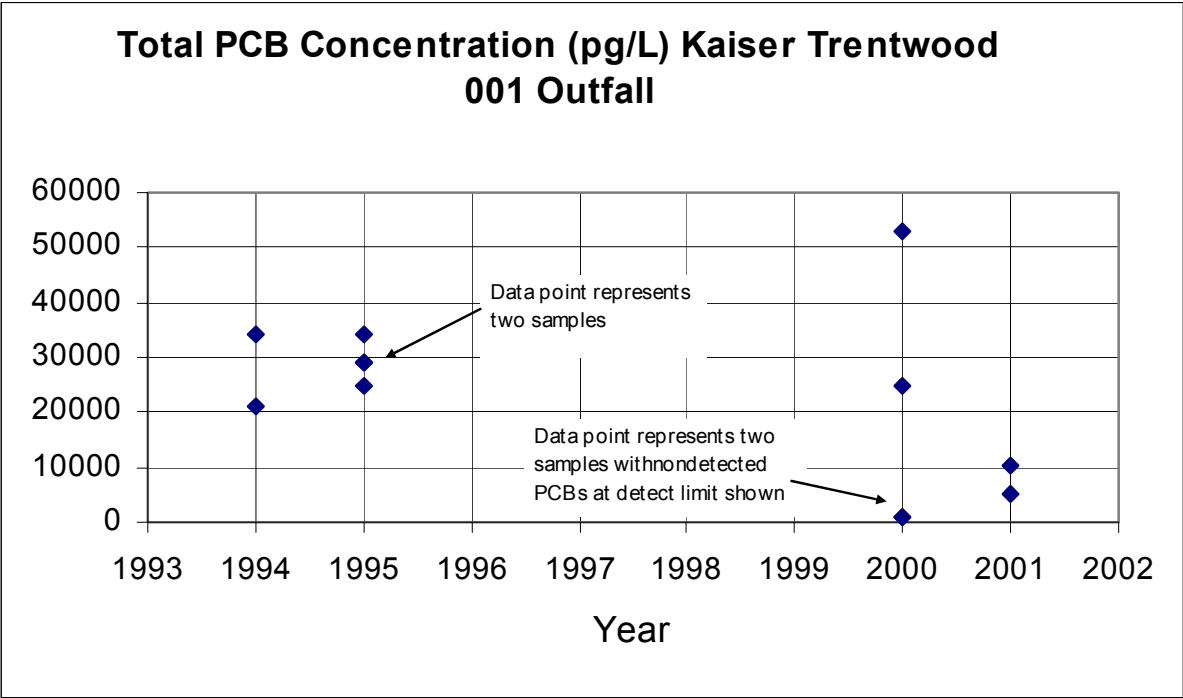


Figure 7. Kaiser Trentwood Outfall Total PCBs from Ecology Samples

The tendency for the congener constituents of Aroclors to overlap may cause the earlier data, which are based on Aroclor-equivalent sums rather than congener sums, to be overstated. Although comparable samples of PCB Aroclor-equivalent and congener analyses for wastewater samples are not available for this study, a comparison of Aroclor-equivalent versus congener data for 27 tissue samples in an unrelated study shows Aroclor-equivalent data overstating total PCBs by 8% (Sather et al., 2001).

While historic records of PCBs from Spokane area WWTP sludges extend back to 1994, as shown in Table 6, whole effluent analyses for PCBs have become sensitive enough to quantify PCBs for Spokane area sources other than Kaiser Trentwood and the Spokane Industrial Park only in the past few years. Kaiser Trentwood shows consistent and relatively high concentrations of PCBs during 1994 and 1995, with an average effluent PCB concentration of 28,000 pg/L (Figure 7). Kaiser subsequently made efforts to clean up operations and the wastewater treatment system. Ecology sampling during May of 2000 showed considerable deviation in results, ranging from 53,000 pg/L to nondetectable at 900 pg/L. Kaiser subsequently began applying coagulant to settle solids, upon which PCBs tend to sorb.

The results of the current 2001 monitoring, during which polymer was being applied, showed a reduction in PCBs discharged for the Kaiser Trentwood outfall from those of 1994 and 1995 (10,174 pg/L and 5,165 pg/L - Figure 7). Even so, as shown in Tables 1 and 3, results from Kaiser Trentwood effluent samples show the highest total concentration of PCBs and highest PCB loadings to the Spokane River during this May 2001 survey.

The relatively large variability in Kaiser Trentwood PCB data in 2000 and 2001 suggests that particular attention be given to sample size in designing future monitoring plans for the Kaiser outfall.

Table 6. Summary of Historic Spokane Area PCB Point Source Data – Sludge Samples, $\mu\text{g}/\text{Kg-dry}$.

Source	Lab#	Date	Method	Total PCBs	Identified Aroclor
Spokane WWTP	188189	5/2/01	Aroclor	195*	PCB-1248 PCB-1254 PCB-1260
Spokane WWTP	188192	5/2/01	Aroclor	283*	PCB-1248 PCB-1254 PCB-1260
Spokane WWTP	318169	8/2/94	Aroclor	510	PCB-1248
Liberty Lake WWTP	188193	5/2/01	Aroclor	118*	PCB-1248 PCB-1254
Liberty Lake WWTP	448080	11/01/95	Aroclor	300	PCB-1248
Liberty Lake WWTP	448081	11/01/95	Aroclor	220	PCB-1248
Liberty Lake WWTP	318174	8/3/94	Aroclor	4,400	PCB-1248
Spokane Industrial Park	318166	7/31/94	Aroclor	11,000	PCB-1248
Spokane Industrial Park	218088	5/25/94	Aroclor	12,000	PCB-1248

Bold - Analyte detected

* - estimated values

Total PCBs in one sample of Liberty Lake WWTP sludge collected in 1994 were high (4,400 $\mu\text{g}/\text{Kg-dry}$), but samples collected in 1995 and 2001 from the WWTP were an order of magnitude lower, slightly lower in concentration than sludge samples from the Spokane WWTP.

The 1994 sludge data for the Spokane Industrial Park were obtained from the Spokane Industrial Park WWTP, which had been recently closed.

Conclusions

The low-level congener analyses, as used in this study, have provided for the quantitation of PCBs in their constituent congener forms in effluent and wastewater grab samples. The low practical quantitation limits have allowed for the accurate quantification of PCB congeners and determination of total PCBs in all sources sampled. Although the sample size of two per facility was small, it appeared to be adequate to characterize the discharges at the time of the survey. The single grab sample from Inland Empire Paper, though insufficient to characterize an industrial discharge, identified a moderate concentration of PCB discharged relative to the other dischargers sampled.

Of the four facilities discharging directly to the Spokane River, Kaiser Trentwood was found to have the highest total PCB concentration. The mean of two grab samples of Kaiser Trentwood effluent taken on two consecutive days was 7,670 pg/L. The facility discharging the second highest concentration of total PCBs to the Spokane River was Inland Empire (2,440 pg/L). PCB concentrations and congener distributions were similar for the Spokane and Liberty Lake WWTPs. The Spokane Industrial Park, though not a direct discharger to the Spokane River, had the highest PCB concentration of any source sampled.

Calculated PCB loadings from Kaiser Trentwood exceeded the combined loadings of all other sources monitored (0.48 g/day avg.). Loadings from the Spokane WWTP were second (0.26 g/day avg.). The other two facilities discharging to the river had considerably lower estimated loadings.

Because of uncertainties in previous total PCB determinations based on Aroclor-equivalent analyses, comparisons with total PCB concentrations from the sums of congener groups performed in this current 2001 study should be viewed with caution. The reduction in total PCBs between the 1994 and 1995 Kaiser Trentwood effluent data, and data from this current survey during which polymer was used to settle solids, differ by more than a factor of 2 and are interpreted as real. However, the extent of difference between total PCBs as calculated from historic Aroclor-equivalent and current low-level congener analyses of effluent and wastewater is not known.

The use of low-level PCB congener analyses has proven to be an effective means of accurately quantifying PCBs in wastewater effluents. It is more meaningful to report PCBs as component congeners than as Aroclor-equivalents, since Aroclors are the original commercially-produced form of commercial mixtures of PCBs. In many cases, Aroclors have been altered in the environment. PCB analyses of wastewater sources – and potentially river water, sediments, and fish tissue – can provide a common basis by which to accurately quantify PCBs, assess toxicity, and potentially trace specific congeners from sources to their environmental fate.

Because Aroclor-equivalent analyses are considerably less expensive than low-level congener analyses, Aroclor-equivalent analyses may continue to be a useful means of determining PCB concentrations. The extent of Aroclor-equivalent mixing, weathering, the need for congener-specific data, and detection limits required are among the factors to consider in determining which method to use on a case-by-case basis (Bernhard and Petron, 2001).

References

- Bailey, G. and L. Singleton, 1984. "Spokane Industrial Park Receiving Water Survey." Memorandum to R. Ray. Washington Dept. of Ecology, Olympia, WA.
- Bernhard, T. and Petron, S., 2001. "Analysis of PCB Congeners vs. Aroclors in Ecological Risk Assessment" in Navy Guidance for Conducting Ecological Risk Assessment web page. <http://web.ead.anl.gov/ecorisk/issue/>
- Blau, P., 2001. Personal communication, May 1, 2001. Kaiser Trentwood, Spokane, WA.
- Ecology, 2000. Manchester Laboratory Users Manual, Fifth Edition, Manchester Environmental Laboratory, Washington Dept. of Ecology, Manchester, WA.
- Feddersen, K., 2001. Personal communication, e-mail, November and December 2001. Manchester Environmental Laboratory, Washington Dept. of Ecology, Manchester, WA
- Frame, G.M., J.W. Cochran, and S.S. Bowadt, 1996. "Complete PCB Congener Distributions for 17 Aroclor Mixtures Determined by 3 HRGC Systems Optimized for Comprehensive, Quantitative, Congener-Specific Analysis. J. High Res. Chromatography, Vol. 19, December.
- Golding, S., 2001. Spokane River PCB and Source Survey, August 2000, Environmental Assessment Program, Washington Dept. of Ecology, Olympia, WA. Publication No. 01-03-016.
- Golding, S., 1996. Spokane River PCB Source Monitoring Follow-up Study November and December 1995, Environmental Investigations and Laboratory Services Program, Washington Dept. of Ecology, Olympia, WA. Publication No. 96-331.
- Hopkins, B.S., D.K. Clark, M. Schlender, and M. Stinson, 1985. Basic Water Monitoring Program: Fish Tissue and Sediment Sampling for 1984. Washington Dept. of Ecology, Olympia, WA. Publication No. 85-7.
- Hoyle Dodson, G., 1993. Spokane Industrial Park Class II Inspection, May 18-20, 1992. Environmental Investigations and Laboratory Services Program, Washington Dept. of Ecology, Olympia, WA. Publication No. 93-e27.
- Johnson, A, D. Serdar, and D. Davis, 1994. Results of 1993 Screening Survey on PCBs and Metals in the Spokane River. Environmental Investigations and Laboratory Services Program, Washington Dept. of Ecology, Olympia, WA. Publication No. 94-e24.
- Johnson, A., 1991. Results of Screen for EPA Xenobiotics in Sediment and Bottom Fish from Lake Roosevelt (Columbia River). Washington Dept. of Ecology, Olympia, WA. Publication No. 91-e24.

Joy, J., 1984. Letter to J. Sher, Spokane Spokesman Review. Washington Dept. of Ecology, Olympia, WA.

Kaye, K., 2002. Personal communication, January 10, 2002. AXYS Analytical Services Ltd., Canada.

Lusznik, D., 2002. Personal communication, March 8, 2002. AXYS Analytical Services Ltd., Canada.

Magoon, S., 2001. Personal communication, February and October 2001. Manchester Environmental Laboratory, Washington Dept. of Ecology, Manchester, WA.

Newman, J.W., J.S. Becker, G. Blondina, and R.S. Tjeerdema, 1998. "Quantitation of Aroclors Using Congener-Specific Results," Environmental Toxicology and Chemistry, Vol. 17, No. 11, pp 2159 -2167.

Phillips, L., 2002. Personal communication, March 8, 2002. AXYS Analytical Services Ltd., Canada.

Sather, P.J., M.G. Ikononou, R.F. Addison, T. He, P.S. Ross, B. Fowler, 2001. "Similarity of an Aroclor-Based and a Full Congener-Based Method in Determining Total PCBs and a Modeling Approach to Estimate Aroclor Speciation from Congener-Specific PCB Data," Environmental Science Technology, Vol. 35, pp 4874-4880.

Toxics Investigations Section, 1995. Department of Ecology 1993-94 Investigation of PCBs in the Spokane River, Environmental Investigations and Laboratory Services Program, Washington Dept. of Ecology, Olympia, WA. Publication No. 95-310.

Appendices

Appendix A.

Manchester Environmental Laboratory Quality Assurance and Quality Control Case Narrative Summaries

Manchester Environmental Laboratory
7411 Beach Drive East, Port Orchard Washington 98366

March 23, 2002

Subject: Spokane Area Wastewater PCB
Samples: Manchester: 01188180 through 01188188, 01188191
Axys: L3455-1 through L3455-10
Project ID: Manchester: 1548-01, Axys: 4078
Laboratory: Axys Analytical Services Ltd
Project Officer: Steve Golding
By: Karin Feddersen

Data Review for PCB Congeners

Summary

Data from these analyses were reviewed for qualitative and quantitative accuracy following the method 1668A.

Samples were prepared and analyzed according to EPA method 1668A.

Results have been reported in picograms per liter (pg/L), parts per quadrillion.

All results may be used as qualified.

Holding Times

EPA method 1668A allows storage of samples for one year from the date of collection.

Extraction and analysis took place within this time frame.

Blanks

Low levels of certain target compounds were detected in the laboratory blanks. These congeners were also detected in the samples. If the concentration of a congener in a sample was less than five times that of the method blank, a "U" or "UJ" qualifier was added to the result. In cases where the sample concentration for a congener was greater than five times that of the blank, the blank result is considered insignificant relative to the native concentration detected in the sample. No qualification is warranted in these situations.

Calibration

The calibration standards were within 20% relative standard deviations (RSD) for all target analytes and 30% for all the labeled reference compounds (Internal Standards).

All calibration verification standard recoveries were within QC limits of 70% to 130% for target analytes and 50% to 150% for the labeled reference compounds.

All the ion abundance ratios and relative retention times were within QC criteria.

Internal Standard Recoveries

Internal standard recoveries for these samples were all within the method specified QC limits of 25% to 150% with several exceptions. As is discussed in the narrative from Axys, the ongoing precision and recovery standard (OPR) shows similarly low recoveries for some of the labeled compounds, yet all of the corresponding target analyte recoveries are well within the QC limits. Therefore, the analyte results in the samples are judged to be not affected and have not been qualified.

Ion abundance ratios

Each congener reported as detected met the isotopic abundance ratio and retention time criteria for positive identification with several exceptions. These exceptions have been qualified with "NJ".

On-going Precision and Recovery (OPR)

Target analyte recoveries were within quality control limits. Labeled compound recoveries were within quality control limits with the exceptions mentioned above (under Internal Standard Recoveries).

Data Qualifier Codes

- U - The analyte was not detected at or above the reported value.
- J - The analyte was positively identified. The associated numerical value is an estimate.
- UJ - The analyte was not detected at or above the reported estimated result.
- NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.

WA STATE DEPT OF ECOLOGY

Aqueous Samples

PCB Congener and
PCB Aroclor Equivalent Analysis

By EPA Method: 1668A / Version 1

Data Package :
4078
L3455 -1 to -10



AXYS

Analytical Services Ltd

August 2001

Stuart Magoon
 WA State Dept of Ecology
 7411 Beach Drive East
 Port Orchard, WA 98366
 USA

COVER PAGE – PCB Congener and PCB Aroclor Equivalent Analysis

Lab Name: Alys Analytical Services Ltd.		Contract No: 4078	
Project No: N/A		Alys Method: 1668A	Method Issue / Version: 1
Industrial Category: N/A		Program: Aqueous Samples	
Client Sample No.		Lab Sample ID	
LAB BLANK		WG4439-101	
OPR		WG4439-102	
Spokane Area PCB - 188180 SPOKWWTP1		L3455 -1	
Spokane Area PCB - 188181 INLAND		L3455-2	
Spokane Area PCB - 188182 SIP1		L3455-3	
Spokane Area PCB - 188183 KAISER 1		L3455-4	
Spokane Area PCB - 188184 LIBLAKE 1		L3455-5	
Spokane Area PCB - 188185 SPOKWWTP2		L3455-6	
Spokane Area PCB - 188186 SIP2		L3455-7	
Spokane Area PCB - 188187 KAISER 2		L3455-8	
Spokane Area PCB - 188188 LIBLAKE 2		L3455-9	
Spokane Area PCB - 188191 TRNSFBLK		L3455-10	
<p>Comments: Narrative Report is attached. (yes)</p> <p>I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed in the Narrative Report. Release of the data contained in this hardcopy data package (and in the data submitted on magnetic media, if data are submitted on magnetic media), has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.</p>			
Signature: <i>Katharine Kaye</i>		Name: <i>Katharine Kaye, MSc</i>	
Date: <i>14 Aug 2001</i>		Title: <i>QA Chemist</i>	

WASHINGTON STATE DEPARTMENT OF ECOLOGY
PROJECT: SPOKANE AREA PCB
AQUEOUS SAMPLES

EPA METHOD 1668A
PCB CONGENER, AROCLOR EQUIVALENTS

4078: L3455: 1 - 10
14 August 2001

Narrative:

Scope

This narrative describes the analysis of ten aqueous samples for PCB congeners and Aroclor equivalents determined using EPA Method 1668A.

Sample Receipt and Storage

Samples were received on 8th and 9th of May 2001. The samples were transferred to secure sample storage.

Analysis

The composition of the analysis batch is shown on the Sample Batch Summary form included with the data package.

PCB1668A: Representative sub-samples of each sample were taken and spiked with a suite of isotopically labeled surrogate standards, cleaned by column chromatography, and spiked with isotopically labeled recovery (internal) standards just prior to instrumental analysis. Analysis procedures were in general accordance with 'USEPA Method 1668, Revision A: Chlorinated Biphenyl Congeners in Water, Soil, Sediment and Tissue by HRGC/HRMS'.

Determination of PCB Aroclor Equivalents

Identification of PCB Aroclors in environmental samples is complicated by the similarities between the various Aroclor formulations and the compositional changes that can occur in the environment. Due to this, Axys Analytical Services Ltd. follows the convention that a single Aroclor is reported only when its unique Aroclor pattern can be identified; otherwise, Aroclors are quantified and reported as a mixture of the Aroclors 1242, 1254, & 1260.

The PCB Aroclor equivalent concentrations were determined from the summed concentrations of specific PCB congeners, characteristic of the Aroclor formulation, multiplied by an empirically determined quantification factor. The following PCB congener sets and empirical factors were used:

Aroclor	PCB congeners	Quantification factor
1242	8/18/31/28	3.8
1248	66/44/49	5.5
1254	87/97/99	10
1260	183/180/170	7.1

Instrumental analysis was conducted by high-resolution gas chromatography/high resolution mass spectrometry (HRGC/HRMS) on a VG magnetic sector high resolution MS equipped with an HP 6890 gas chromatograph, a CTC auto sampler, and an Alpha data system running Micromass software. An SPB-Octyl (30 m, 0.25 mm i.d., 0.25 µm film thickness) chromatography column was coupled directly to the MS source. The MS was operated at 10 000 (static) mass resolution in the electron impact ionization mode using multiple ion detection, acquiring at least two ions for each target and surrogate compound. Target concentrations were determined by isotope dilution or internal standard, with respect to the labeled surrogates added just after extraction, using Micromass OPUSQUAN software.

QA/QC

- Samples were analyzed following fully documented procedures in sample batches carried intact through the entire analytical process. The sample data was reviewed and evaluated in relation to the

batch QC samples. For results to be judged acceptable all data had to meet the quality acceptance specifications documented in the analytical method and on the data reporting forms.

- The acceptance range for percent recoveries of labeled PCB's 1 & 3 is not always attainable. All the target analyte concentrations are corrected by the surrogate recoveries as per the method. The OPR shows similar results for the labeled compounds and the associated target analytes are well within the method specifications. Axys feels that the data for the target analytes PCB's 1, 2 & 3 have not been significantly affected.
- OPR WG4439-102: percent recoveries of some labeled compounds were outside the method specifications; however, the percent recoveries of the associated target analytes were within the method specifications. Sample data have been accepted.

Analytical Discussion

- Those samples' analyte concentrations not exceeding 5 times the concentration observed in the associated LAB BLANK have been qualified with "UJ".
- Those samples' analytes not detected at the instrument detection limit calculated on an individual sample basis have been qualified with "U", and the detection limit has been entered into both of the concentration and detection limit fields.
- Those samples' analytes co-eluting with one or more other congeners (having a higher IUPAC number) have been qualified with "C". The concentration of the co-eluting group has been entered into the concentration field, and the instrument detection limit entered into the detection limit field.
- Those samples' analytes co-eluting with one or more other congeners (having a lower IUPAC number) have been qualified with "Cx", where "x" denotes the IUPAC number of the lowest numerical IUPAC designated congener in the group. There is no entry of a concentration or detection limit.
- Those samples' analytes having a concentration less than the lowest method calibration limit are qualified with "J".
- Those samples' analytes having been detected at the correct relative retention time but not meeting the ion abundance ratio specification are qualified with "NJ".

Reporting Conventions

Laboratory ID numbers of the form L3455-XX, (X are numerals), were assigned to the samples and used for internal identification. All data reports reference this unique Axys ID plus the client sample identifier.

Any extra work required and performed after the initial instrumental analysis of the extract is designated by a suffix to the sample identification, as follows:

R = repeat analysis from a backup portion of the sample

i = instrumental re-injection of the extract for reason stated on extraction log or batch summary

W = dilution and re-injection for the reason stated on the extraction log or batch summary

Data Package

Included in the data package are the raw, intermediate, and final data including laboratory worksheets, laboratory Batch Summary Sheets, sample and calibration chromatograms, instrument calibration summary data, instrumental run logs, OPUSQUAN calculation sheets, final data reports, chain of custody documents, hard copies of the GC temperature program used, mass resolution verifications, and a cross reference of Axys versus client identification numbers.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. In addition, I certify, that to the best of my knowledge and belief, the data as reported are true and accurate. Release of the data contained in this data package has been authorized by the Laboratory Manager or his designee, as verified by the following signature.


Signed: Katharine Kaye, M.Sc. QA Chemist


Date Signed

Manchester Environmental Laboratory
7411 Beach Drive East, Port Orchard Washington 98366

CASE NARRATIVE

May 31, 2001

Subject: Spokane Area Wastewater PCB
Samples: 01188189 – 01188190, 01188192 - 01188193
Case No. 1488-00
Officer: Steve Golding
By: Myrna Mandjikov

PCB Aroclor Analysis of the Spokane Area Wastewater Sludge

Summary

Low percent solids and high concentrations of interfering compounds affected the reporting limits in this project.

The reporting limits differ between Aroclors because the lighter Aroclors 1016, 1221, 1232, and 1242 are not as sensitive as the heavier Aroclors 1248, 1254 and 1260. There is no evidence of the presence of lighter Aroclors in any sample.

If an Aroclor pattern was recognized below the laboratory reporting limit, it was reported and estimated. Results reported below the laboratory reporting limit but above the instrument detection limit are qualified as estimates, "J". If either the percent difference between the confirming columns or the standard deviation between the congener peaks chosen for quantitation are greater than 40 % then the result is qualified with "NJ".

There is evidence of Aroclors 1248, 1254 and 1260 present in sample 01188190 at an approximate level of 100 ug/Kg and Aroclor 1260 in sample 01188193 at about 20 ug/Kg. These values are not reported due to the high possibility of uncertainty in the identification and quantitation of the Aroclor peaks amidst the interfering compounds.

The data is useable as qualified.

Methods

The samples were extracted into acetone by Soxhlet extraction. Each extract was then eluted through a Florisil® column, with a 94% hexane / 6% preserved diethyl ether solution.

The extracts were solvent exchanged to iso-octane and treated with elemental mercury to remove sulfur and then treated with concentrated sulfuric acid. At this point each extract was analyzed by GC-ECD but the samples contained so much interference that no quantitation was possible.

100 uL of each sample extract was then eluted through a micro Florisil® column with 100% hexane, adjusted to 1 mL (10 fold dilution) and treated with concentrated sulfuric acid a second time prior to analysis by GC-ECD.

These methods are modifications of EPA SW- 846 methods 3540, 3550, 3620, 3665, and 8082.

Blanks

No target analytes were detected in the blanks.

Surrogates

All samples and blanks were spiked with decachlorobiphenyl (DCB) prior to extraction. All surrogate recoveries are within the acceptable range of 50 % - 150 % of the reference value.

Duplicate Samples

Sample 01188190 was prepared in duplicate. The level of Aroclors in the sample was too low to calculate the relative percent differences (RPD).

Spiked Sample And Duplicate Spiked Sample

Sample 01188192 was prepared in triplicate. Two replicates of the sample were spiked with Aroclors 1016 and 1260. All analytes recovered within the method control limits of 50 % - 150 %.

	LMX1	LMX2	RPD
Aroclor 1016	120 %	139 %	15 %
Aroclor 1260	122 %	137 %	12 %

Holding Times

The sample was extracted and analyzed within the recommended holding times.

DATA QUALIFIERS

Code	Definition
E	Reported result is an estimate because it exceeds the calibration.
J	The analyte was positively identified. The associated numerical result is an estimate.
N	There is evidence the analyte is present in this sample.
NJ	There is evidence that the analyte is present. The associated numerical result is an estimate.
NAF	Not analyzed for.
NC	Not calculated.
REJ	The data are unusable for all purposes.
U	The analyte was not detected at or above the reported result.
UJ	The analyte was not detected at or above the reported estimated result.
Bold Type	The analyte was present in the sample. Used as a visual aid to locate detected compounds on the report sheet.

Manchester Environmental Laboratory
7411 Beach Drive East, Port Orchard Washington 98366

June 4, 2001

TO: Steven Golding

FROM: Kamilee Ginder, Chemist

SUBJECT: General Chemistry Quality Assurance Memo for Spokane Area
Wastewater PCB

Summary

The data generated by the analysis of these samples can be used without qualification. All analyses requested were evaluated by established regulatory quality assurance guidelines.

Sample Information

Samples for Spokane Area Wastewater PCB project were received by Manchester Environmental Laboratory on 05/04/01 in good condition.

Holding Times

All analyses were performed within established EPA holding times.

Analysis Performance

Instrument Calibration

Instrument calibration was checked by initial calibration verification standards and blanks. All initial and continuing calibration verification standards were within control limits. A correlation coefficient of 0.995 or greater was met. Balances are professionally calibrated yearly and calibrated in-house daily. Oven temperature is recorded before and after each analysis batch.

Procedural Blanks

The procedural blanks associated with these samples showed no significant analytical levels of analytes.

Spiked Sample Analysis

Spiked sample analyses were performed where applicable with all spike recoveries within acceptance limits of $\pm 25\%$. Spiked sample analysis is performed at a frequency of at least 5%.

Precision Data

Spiked sample results and duplicate sample results were used to evaluate precision on this sample set. Relative Percent Differences (RPD) for general chemistry parameters were within acceptance limits of $\pm 20\%$ for duplicate analysis. Laboratory duplication is performed at a frequency of at least 10%. Precision and accuracy specifications are based on sample concentrations greater than four times the reporting limit. For results near the reporting limit, the criteria are not guaranteed to be better than \pm the method detection limit.

Laboratory Control Sample (LCS) Analyses

LCS analyses were within the windows established for each parameter.

Other Quality Assurance Measures and Issues

The "U" qualification indicates that the analyte was not detected at or above the reporting limit.

Please call Jim Ross at (360) 871-8808 or Kamilee Ginder at (360) 871-8826 to further discuss this project.

cc: Project File

Appendix B.

Results of Low-level Congener Analyses

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 1)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	6.11	188183 KAISER 1	U - not detected at or above the reported result.
CL1-PCB-2	U	1.76	188183 KAISER 1	
CL1-PCB-3	UJ	1.92	188183 KAISER 1	
CL2-PCB-4		242	188183 KAISER 1	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	1.26	188183 KAISER 1	
CL2-PCB-6		39.2	188183 KAISER 1	
CL2-PCB-7	UJ	4.36	188183 KAISER 1	J- concentration less than LMCL
CL2-PCB-8		107	188183 KAISER 1	
CL2-PCB-9	UJ	5.55	188183 KAISER 1	
CL2-PCB-10	J	10.6	188183 KAISER 1	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11	UJ	20.4	188183 KAISER 1	
CL2-PCB-12/13	J	19.7	188183 KAISER 1	
CL2-PCB-14	U	1.23	188183 KAISER 1	
CL2-PCB-15		187	188183 KAISER 1	
CL3-PCB-16		304	188183 KAISER 1	
CL3-PCB-17		338	188183 KAISER 1	
CL3-PCB-18/30		657	188183 KAISER 1	
CL3-PCB-19		142	188183 KAISER 1	
CL3-PCB-20/28		862	188183 KAISER 1	
CL3-PCB-21/33		265	188183 KAISER 1	
CL3-PCB-22		242	188183 KAISER 1	
CL3-PCB-23	U	1.21	188183 KAISER 1	
CL3-PCB-24	J	8.77	188183 KAISER 1	
CL3-PCB-25		48.1	188183 KAISER 1	
CL3-PCB-26/29		126	188183 KAISER 1	
CL3-PCB-27		58.5	188183 KAISER 1	
CL3-PCB-31		682	188183 KAISER 1	
CL3-PCB-32		224	188183 KAISER 1	
CL3-PCB-34	J	6.59	188183 KAISER 1	
CL3-PCB-35	J	7.56	188183 KAISER 1	
CL3-PCB-36	U	1.15	188183 KAISER 1	
CL3-PCB-37		148	188183 KAISER 1	
CL3-PCB-38	U	1.23	188183 KAISER 1	
CL3-PCB-39	J	4.69	188183 KAISER 1	
CL4-PCB-40/41/71		296	188183 KAISER 1	
CL4-PCB-42		171	188183 KAISER 1	
CL4-PCB-43		25.3	188183 KAISER 1	
CL4-PCB-44/47/65		565	188183 KAISER 1	
CL4-PCB-45/51		146	188183 KAISER 1	
CL4-PCB-46		53.1	188183 KAISER 1	
CL4-PCB-48		118	188183 KAISER 1	
CL4-PCB-49/69		329	188183 KAISER 1	
CL4-PCB-50/53		102	188183 KAISER 1	
CL4-PCB-52		537	188183 KAISER 1	
CL4-PCB-54	J	2.42	188183 KAISER 1	
CL4-PCB-55	U	4.28	188183 KAISER 1	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56		233	188183 KAISER 1	U - not detected at or above the reported result.
CL4-PCB-57	U	4.23	188183 KAISER 1	
CL4-PCB-58	U	4.28	188183 KAISER 1	
CL4-PCB-59/62/75	J	52.8	188183 KAISER 1	UJ - not detected at or above the reported estimated result.
CL4-PCB-60		42.8	188183 KAISER 1	
CL4-PCB-61/70/74/76		697	188183 KAISER 1	
CL4-PCB-63	J	16.9	188183 KAISER 1	J- concentration less than LMCL
CL4-PCB-64		240	188183 KAISER 1	
CL4-PCB-66		434	188183 KAISER 1	
CL4-PCB-67	J	9.15	188183 KAISER 1	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-68	U	3.95	188183 KAISER 1	
CL4-PCB-72	U	4.04	188183 KAISER 1	
CL4-PCB-73	U	0.404	188183 KAISER 1	
CL4-PCB-77		31.6	188183 KAISER 1	
CL4-PCB-78	U	4.29	188183 KAISER 1	
CL4-PCB-79	J	5.43	188183 KAISER 1	
CL4-PCB-80	U	4.02	188183 KAISER 1	
CL4-PCB-81	U	4.16	188183 KAISER 1	
CL5-PCB-82		26.0	188183 KAISER 1	
CL5-PCB-83/99		126	188183 KAISER 1	
CL5-PCB-84		66.4	188183 KAISER 1	
CL5-PCB-85/116/117	J	31.2	188183 KAISER 1	
CL5-PCB-86/87/97/108/119/125	J	126	188183 KAISER 1	
CL5-PCB-88/91	J	33.5	188183 KAISER 1	
CL5-PCB-89	J	6.62	188183 KAISER 1	
CL5-PCB-90/101/113		142	188183 KAISER 1	
CL5-PCB-92		25.2	188183 KAISER 1	
CL5-PCB-93/95/98/100/102		130	188183 KAISER 1	
CL5-PCB-94	UJ	2.06	188183 KAISER 1	
CL5-PCB-96	J	3.86	188183 KAISER 1	
CL5-PCB-103	UJ	1.32	188183 KAISER 1	
CL5-PCB-104	U	0.706	188183 KAISER 1	
CL5-PCB-105		44.3	188183 KAISER 1	
CL5-PCB-106	U	1.01	188183 KAISER 1	
CL5-PCB-107/124	UJ	2.93	188183 KAISER 1	
CL5-PCB-109	J	8.76	188183 KAISER 1	
CL5-PCB-110/115		166	188183 KAISER 1	
CL5-PCB-111	U	0.914	188183 KAISER 1	
CL5-PCB-112	U	0.875	188183 KAISER 1	
CL5-PCB-114	UJ	3.71	188183 KAISER 1	
CL5-PCB-118		119	188183 KAISER 1	
CL5-PCB-120	U	0.880	188183 KAISER 1	
CL5-PCB-121	U	0.960	188183 KAISER 1	
CL5-PCB-122	UJ	1.96	188183 KAISER 1	
CL5-PCB-123	UJ	3.50	188183 KAISER 1	
CL5-PCB-126	U	1.22	188183 KAISER 1	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	1.17	188183 KAISER 1	U - not detected at or above the reported result.
CL6-PCB-128/166	J	7.09	188183 KAISER 1	
CL6-PCB-129/138/160/163	J	42.5	188183 KAISER 1	
CL6-PCB-130	UJ	2.68	188183 KAISER 1	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	U	0.874	188183 KAISER 1	
CL6-PCB-132	J	11.5	188183 KAISER 1	
CL6-PCB-133	U	0.805	188183 KAISER 1	J- concentration less than LMCL
CL6-PCB-134/143	UJ	1.30	188183 KAISER 1	
CL6-PCB-135/151/154	J	10.8	188183 KAISER 1	
CL6-PCB-136	J	5.02	188183 KAISER 1	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	UJ	1.68	188183 KAISER 1	
CL6-PCB-139/140	UJ	0.754	188183 KAISER 1	
CL6-PCB-141	J	4.79	188183 KAISER 1	
CL6-PCB-142	U	0.814	188183 KAISER 1	
CL6-PCB-144	UJ	1.24	188183 KAISER 1	
CL6-PCB-145	U	0.337	188183 KAISER 1	
CL6-PCB-146	J	6.74	188183 KAISER 1	
CL6-PCB-147/149	J	22.8	188183 KAISER 1	
CL6-PCB-148	U	0.441	188183 KAISER 1	
CL6-PCB-150	U	0.324	188183 KAISER 1	
CL6-PCB-152	UJ	0.428	188183 KAISER 1	
CL6-PCB-153/168	J	43.1	188183 KAISER 1	
CL6-PCB-155	U	0.302	188183 KAISER 1	
CL6-PCB-156/157	J	6.38	188183 KAISER 1	
CL6-PCB-158	J	3.64	188183 KAISER 1	
CL6-PCB-159	U	0.575	188183 KAISER 1	
CL6-PCB-161	U	0.550	188183 KAISER 1	
CL6-PCB-162	U	0.565	188183 KAISER 1	
CL6-PCB-164	NJ	2.68	188183 KAISER 1	
CL6-PCB-165	U	0.649	188183 KAISER 1	
CL6-PCB-167	J	2.69	188183 KAISER 1	
CL6-PCB-169	U	0.573	188183 KAISER 1	
CL7-PCB-170	J	11.1	188183 KAISER 1	
CL7-PCB-171/173	NJ	2.90	188183 KAISER 1	
CL7-PCB-172	UJ	2.14	188183 KAISER 1	
CL7-PCB-174	NJ	5.55	188183 KAISER 1	
CL7-PCB-175	U	0.501	188183 KAISER 1	
CL7-PCB-176	UJ	0.722	188183 KAISER 1	
CL7-PCB-177	J	4.26	188183 KAISER 1	
CL7-PCB-178	UJ	2.20	188183 KAISER 1	
CL7-PCB-179	J	2.84	188183 KAISER 1	
CL7-PCB-180/193	J	36.4	188183 KAISER 1	
CL7-PCB-181	U	0.497	188183 KAISER 1	
CL7-PCB-182	U	0.500	188183 KAISER 1	
CL7-PCB-183/185	J	7.68	188183 KAISER 1	
CL7-PCB-184	U	0.367	188183 KAISER 1	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.398	188183 KAISER 1	U - not detected at or above the reported result.
CL7-PCB-187	J	13.0	188183 KAISER 1	
CL7-PCB-188	U	0.363	188183 KAISER 1	
CL7-PCB-189	U	0.393	188183 KAISER 1	UJ - not detected at or above the reported estimated result.
CL7-PCB-190	J	2.82	188183 KAISER 1	
CL7-PCB-191	U	0.383	188183 KAISER 1	
CL7-PCB-192	U	0.408	188183 KAISER 1	J- concentration less than LMCL
CL8-PCB-194	J	5.90	188183 KAISER 1	
CL8-PCB-195	J	2.81	188183 KAISER 1	
CL8-PCB-196	J	2.96	188183 KAISER 1	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-197/200	UJ	1.08	188183 KAISER 1	
CL8-PCB-198/199	J	6.74	188183 KAISER 1	
CL8-PCB-201	UJ	0.638	188183 KAISER 1	
CL8-PCB-202	J	1.41	188183 KAISER 1	
CL8-PCB-203	J	5.85	188183 KAISER 1	
CL8-PCB-204	UJ	0.393	188183 KAISER 1	
CL8-PCB-205	U	0.685	188183 KAISER 1	
CL9-PCB-206	UJ	3.42	188183 KAISER 1	
CL9-PCB-207	U	1.25	188183 KAISER 1	
CL9-PCB-208	U	1.26	188183 KAISER 1	
CL10-PCB-209	UJ	1.56	188183 KAISER 1	
Total PCB Congeners		10,174	pg/L	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 2)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	5.05	188187 KAISER 2	U - not detected at or above the reported result.
CL1-PCB-2	U	1.58	188187 KAISER 2	
CL1-PCB-3	U	2.12	188187 KAISER 2	
CL2-PCB-4		167	188187 KAISER 2	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	2.05	188187 KAISER 2	
CL2-PCB-6		27.2	188187 KAISER 2	
CL2-PCB-7	UJ	3.23	188187 KAISER 2	J- concentration less than LMCL
CL2-PCB-8		55.3	188187 KAISER 2	
CL2-PCB-9	UJ	4.27	188187 KAISER 2	
CL2-PCB-10	J	10.2	188187 KAISER 2	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11	UJ	25.1	188187 KAISER 2	
CL2-PCB-12/13	J	12.7	188187 KAISER 2	
CL2-PCB-14	U	1.93	188187 KAISER 2	
CL2-PCB-15		129	188187 KAISER 2	
CL3-PCB-16		177	188187 KAISER 2	
CL3-PCB-17		205	188187 KAISER 2	
CL3-PCB-18/30		435	188187 KAISER 2	
CL3-PCB-19		106	188187 KAISER 2	
CL3-PCB-20/28		556	188187 KAISER 2	
CL3-PCB-21/33		118	188187 KAISER 2	
CL3-PCB-22		133	188187 KAISER 2	
CL3-PCB-23	U	1.02	188187 KAISER 2	
CL3-PCB-24	J	8.38	188187 KAISER 2	
CL3-PCB-25		33.6	188187 KAISER 2	
CL3-PCB-26/29		88.1	188187 KAISER 2	
CL3-PCB-27		44.6	188187 KAISER 2	
CL3-PCB-31		426	188187 KAISER 2	
CL3-PCB-32		152	188187 KAISER 2	
CL3-PCB-34	J	3.73	188187 KAISER 2	
CL3-PCB-35	J	4.10	188187 KAISER 2	
CL3-PCB-36	U	0.959	188187 KAISER 2	
CL3-PCB-37		73.8	188187 KAISER 2	
CL3-PCB-38	U	1.02	188187 KAISER 2	
CL3-PCB-39	UJ	1.70	188187 KAISER 2	
CL4-PCB-40/41/71		143	188187 KAISER 2	
CL4-PCB-42		78.1	188187 KAISER 2	
CL4-PCB-43	J	13.4	188187 KAISER 2	
CL4-PCB-44/47/65		276	188187 KAISER 2	
CL4-PCB-45/51		81.4	188187 KAISER 2	
CL4-PCB-46		29.3	188187 KAISER 2	
CL4-PCB-48		50.4	188187 KAISER 2	
CL4-PCB-49/69		164	188187 KAISER 2	
CL4-PCB-50/53		56.3	188187 KAISER 2	
CL4-PCB-52		286	188187 KAISER 2	
CL4-PCB-54	UJ	1.90	188187 KAISER 2	
CL4-PCB-55	U	1.73	188187 KAISER 2	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56		89.2	188187 KAISER 2	U - not detected at or above the reported result.
CL4-PCB-57	U	1.71	188187 KAISER 2	
CL4-PCB-58	U	1.75	188187 KAISER 2	
CL4-PCB-59/62/75	J	25.7	188187 KAISER 2	UJ - not detected at or above the reported estimated result.
CL4-PCB-60	J	23.5	188187 KAISER 2	
CL4-PCB-61/70/74/76		279	188187 KAISER 2	
CL4-PCB-63	J	6.94	188187 KAISER 2	J- concentration less than LMCL
CL4-PCB-64		116	188187 KAISER 2	
CL4-PCB-66		170	188187 KAISER 2	
CL4-PCB-67	J	4.73	188187 KAISER 2	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-68	U	1.60	188187 KAISER 2	
CL4-PCB-72	U	1.66	188187 KAISER 2	
CL4-PCB-73	U	0.444	188187 KAISER 2	
CL4-PCB-77	J	11.2	188187 KAISER 2	
CL4-PCB-78	U	1.79	188187 KAISER 2	
CL4-PCB-79	U	1.49	188187 KAISER 2	
CL4-PCB-80	U	1.62	188187 KAISER 2	
CL4-PCB-81	U	1.69	188187 KAISER 2	
CL5-PCB-82	J	9.13	188187 KAISER 2	
CL5-PCB-83/99	J	32.8	188187 KAISER 2	
CL5-PCB-84	J	21.4	188187 KAISER 2	
CL5-PCB-85/116/117	J	11.4	188187 KAISER 2	
CL5-PCB-86/87/97/108/119/125	J	37.6	188187 KAISER 2	
CL5-PCB-88/91	J	10.9	188187 KAISER 2	
CL5-PCB-89	U	2.44	188187 KAISER 2	
CL5-PCB-90/101/113	J	43.2	188187 KAISER 2	
CL5-PCB-92	J	7.78	188187 KAISER 2	
CL5-PCB-93/95/98/100/102	U	2.18	188187 KAISER 2	
CL5-PCB-94	U	2.37	188187 KAISER 2	
CL5-PCB-96	UJ	1.39	188187 KAISER 2	
CL5-PCB-103	U	1.99	188187 KAISER 2	
CL5-PCB-104	U	0.877	188187 KAISER 2	
CL5-PCB-105	J	16.1	188187 KAISER 2	
CL5-PCB-106	U	1.26	188187 KAISER 2	
CL5-PCB-107/124	UJ	1.39	188187 KAISER 2	
CL5-PCB-109	UJ	3.02	188187 KAISER 2	
CL5-PCB-110/115		54.3	188187 KAISER 2	
CL5-PCB-111	U	1.65	188187 KAISER 2	
CL5-PCB-112	U	1.64	188187 KAISER 2	
CL5-PCB-114	U	1.26	188187 KAISER 2	
CL5-PCB-118		33.2	188187 KAISER 2	
CL5-PCB-120	U	1.60	188187 KAISER 2	
CL5-PCB-121	U	1.66	188187 KAISER 2	
CL5-PCB-122	U	1.52	188187 KAISER 2	
CL5-PCB-123	U	1.31	188187 KAISER 2	
CL5-PCB-126	U	1.40	188187 KAISER 2	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	1.34	188187 KAISER 2	U - not detected at or above the reported result.
CL6-PCB-128/166	UJ	1.59	188187 KAISER 2	
CL6-PCB-129/138/160/163	UJ	11.5	188187 KAISER 2	
CL6-PCB-130	UJ	0.895	188187 KAISER 2	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	U	0.760	188187 KAISER 2	
CL6-PCB-132	UJ	4.05	188187 KAISER 2	
CL6-PCB-133	U	0.732	188187 KAISER 2	J- concentration less than LMCL
CL6-PCB-134/143	U	0.743	188187 KAISER 2	
CL6-PCB-135/151/154	NJ	3.44	188187 KAISER 2	
CL6-PCB-136	UJ	1.41	188187 KAISER 2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	UJ	0.809	188187 KAISER 2	
CL6-PCB-139/140	U	0.654	188187 KAISER 2	
CL6-PCB-141	UJ	2.33	188187 KAISER 2	
CL6-PCB-142	U	0.752	188187 KAISER 2	
CL6-PCB-144	UJ	0.520	188187 KAISER 2	
CL6-PCB-145	U	0.352	188187 KAISER 2	
CL6-PCB-146	UJ	2.06	188187 KAISER 2	
CL6-PCB-147/149	UJ	10.1	188187 KAISER 2	
CL6-PCB-148	U	0.471	188187 KAISER 2	
CL6-PCB-150	U	0.331	188187 KAISER 2	
CL6-PCB-152	U	0.329	188187 KAISER 2	
CL6-PCB-153/168	UJ	10.0	188187 KAISER 2	
CL6-PCB-155	U	0.373	188187 KAISER 2	
CL6-PCB-156/157	UJ	1.85	188187 KAISER 2	
CL6-PCB-158	UJ	1.21	188187 KAISER 2	
CL6-PCB-159	U	0.517	188187 KAISER 2	
CL6-PCB-161	U	0.516	188187 KAISER 2	
CL6-PCB-162	U	0.500	188187 KAISER 2	
CL6-PCB-164	U	0.480	188187 KAISER 2	
CL6-PCB-165	U	0.557	188187 KAISER 2	
CL6-PCB-167	U	0.453	188187 KAISER 2	
CL6-PCB-169	U	0.506	188187 KAISER 2	
CL7-PCB-170	UJ	2.38	188187 KAISER 2	
CL7-PCB-171/173	U	0.472	188187 KAISER 2	
CL7-PCB-172	UJ	0.576	188187 KAISER 2	
CL7-PCB-174	UJ	2.87	188187 KAISER 2	
CL7-PCB-175	UJ	0.482	188187 KAISER 2	
CL7-PCB-176	U	0.337	188187 KAISER 2	
CL7-PCB-177	UJ	1.02	188187 KAISER 2	
CL7-PCB-178	U	0.456	188187 KAISER 2	
CL7-PCB-179	UJ	1.00	188187 KAISER 2	
CL7-PCB-180/193	NJ	6.15	188187 KAISER 2	
CL7-PCB-181	U	0.429	188187 KAISER 2	
CL7-PCB-182	U	0.423	188187 KAISER 2	
CL7-PCB-183/185	UJ	1.66	188187 KAISER 2	
CL7-PCB-184	U	0.318	188187 KAISER 2	

Appendix B - Results of Low-level Congener Analyses

Kaiser Trentwood 001 final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.342	188187 KAISER 2	U - not detected at or above the reported result.
CL7-PCB-187	J	3.39	188187 KAISER 2	
CL7-PCB-188	U	0.310	188187 KAISER 2	
CL7-PCB-189	U	1.18	188187 KAISER 2	
CL7-PCB-190	UJ	0.661	188187 KAISER 2	UJ - not detected at or above the reported estimated result.
CL7-PCB-191	U	0.337	188187 KAISER 2	
CL7-PCB-192	U	0.353	188187 KAISER 2	
CL8-PCB-194	U	4.25	188187 KAISER 2	J- concentration less than LMCL
CL8-PCB-195	U	4.64	188187 KAISER 2	
CL8-PCB-196	U	1.13	188187 KAISER 2	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-197/200	U	0.865	188187 KAISER 2	
CL8-PCB-198/199	NJ	2.83	188187 KAISER 2	
CL8-PCB-201	U	0.896	188187 KAISER 2	
CL8-PCB-202	U	0.913	188187 KAISER 2	
CL8-PCB-203	J	1.50	188187 KAISER 2	
CL8-PCB-204	U	0.896	188187 KAISER 2	
CL8-PCB-205	U	3.84	188187 KAISER 2	
CL9-PCB-206	U	1.44	188187 KAISER 2	
CL9-PCB-207	U	1.15	188187 KAISER 2	
CL9-PCB-208	U	1.15	188187 KAISER 2	
CL10-PCB-209	UJ	1.54	188187 KAISER 2	
Total PCB Congeners		5,165	pg/L	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 1)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	6.38	188180 SPOKWWTP1	U - not detected at or above the reported result.
CL1-PCB-2	U	1.35	188180 SPOKWWTP1	
CL1-PCB-3	UJ	1.99	188180 SPOKWWTP1	
CL2-PCB-4		29.6	188180 SPOKWWTP1	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	1.15	188180 SPOKWWTP1	
CL2-PCB-6	UJ	3.32	188180 SPOKWWTP1	
CL2-PCB-7	U	1.07	188180 SPOKWWTP1	
CL2-PCB-8	UJ	10.5	188180 SPOKWWTP1	
CL2-PCB-9	UJ	1.77	188180 SPOKWWTP1	
CL2-PCB-10	UJ	1.53	188180 SPOKWWTP1	
CL2-PCB-11	UJ	38.9	188180 SPOKWWTP1	
CL2-PCB-12/13	UJ	2.59	188180 SPOKWWTP1	
CL2-PCB-14	U	1.12	188180 SPOKWWTP1	
CL2-PCB-15		32.0	188180 SPOKWWTP1	NJ- peak detected, but did not meet quantification criteria.
CL3-PCB-16		34.7	188180 SPOKWWTP1	
CL3-PCB-17		33.6	188180 SPOKWWTP1	
CL3-PCB-18/30		77.7	188180 SPOKWWTP1	
CL3-PCB-19	J	9.56	188180 SPOKWWTP1	
CL3-PCB-20/28		93.2	188180 SPOKWWTP1	
CL3-PCB-21/33	J	21.5	188180 SPOKWWTP1	
CL3-PCB-22		26.5	188180 SPOKWWTP1	
CL3-PCB-23	U	0.799	188180 SPOKWWTP1	
CL3-PCB-24	UJ	1.17	188180 SPOKWWTP1	
CL3-PCB-25	J	6.49	188180 SPOKWWTP1	
CL3-PCB-26/29	J	17.2	188180 SPOKWWTP1	
CL3-PCB-27	J	4.93	188180 SPOKWWTP1	
CL3-PCB-31		90.3	188180 SPOKWWTP1	
CL3-PCB-32		24.6	188180 SPOKWWTP1	
CL3-PCB-34	U	0.824	188180 SPOKWWTP1	
CL3-PCB-35	J	3.49	188180 SPOKWWTP1	
CL3-PCB-36	UJ	0.888	188180 SPOKWWTP1	
CL3-PCB-37	J	17.2	188180 SPOKWWTP1	
CL3-PCB-38	U	0.815	188180 SPOKWWTP1	
CL3-PCB-39	U	0.749	188180 SPOKWWTP1	
CL4-PCB-40/41/71	J	32.7	188180 SPOKWWTP1	
CL4-PCB-42	J	15.4	188180 SPOKWWTP1	
CL4-PCB-43	J	3.50	188180 SPOKWWTP1	
CL4-PCB-44/47/65	J	69.6	188180 SPOKWWTP1	
CL4-PCB-45/51	J	13.5	188180 SPOKWWTP1	
CL4-PCB-46	J	5.32	188180 SPOKWWTP1	
CL4-PCB-48	J	14.2	188180 SPOKWWTP1	
CL4-PCB-49/69	J	39.2	188180 SPOKWWTP1	
CL4-PCB-50/53	J	10.5	188180 SPOKWWTP1	
CL4-PCB-52		108	188180 SPOKWWTP1	
CL4-PCB-54	U	0.440	188180 SPOKWWTP1	
CL4-PCB-55	U	1.00	188180 SPOKWWTP1	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56	J	18.4	188180 SPOKWWTP1	U - not detected at or above the reported result.
CL4-PCB-57	U	0.989	188180 SPOKWWTP1	
CL4-PCB-58	U	1.00	188180 SPOKWWTP1	
CL4-PCB-59/62/75	J	5.62	188180 SPOKWWTP1	UJ - not detected at or above the reported estimated result.
CL4-PCB-60	J	10.4	188180 SPOKWWTP1	
CL4-PCB-61/70/74/76		101	188180 SPOKWWTP1	
CL4-PCB-63	NJ	1.75	188180 SPOKWWTP1	
CL4-PCB-64		26.0	188180 SPOKWWTP1	
CL4-PCB-66		39.8	188180 SPOKWWTP1	
CL4-PCB-67	U	0.860	188180 SPOKWWTP1	J- concentration less than LMCL
CL4-PCB-68	U	0.923	188180 SPOKWWTP1	
CL4-PCB-72	U	0.946	188180 SPOKWWTP1	
CL4-PCB-73	U	0.448	188180 SPOKWWTP1	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-77	J	3.40	188180 SPOKWWTP1	
CL4-PCB-78	U	1.00	188180 SPOKWWTP1	
CL4-PCB-79	J	2.19	188180 SPOKWWTP1	
CL4-PCB-80	U	0.941	188180 SPOKWWTP1	
CL4-PCB-81	U	1.04	188180 SPOKWWTP1	
CL5-PCB-82	J	7.69	188180 SPOKWWTP1	
CL5-PCB-83/99	J	38.9	188180 SPOKWWTP1	
CL5-PCB-84	J	21.5	188180 SPOKWWTP1	
CL5-PCB-85/116/117	J	10.9	188180 SPOKWWTP1	
CL5-PCB-86/87/97/108/119/125	J	49.9	188180 SPOKWWTP1	
CL5-PCB-88/91	J	10.7	188180 SPOKWWTP1	
CL5-PCB-89	U	1.01	188180 SPOKWWTP1	
CL5-PCB-90/101/113		76.1	188180 SPOKWWTP1	
CL5-PCB-92	J	13.7	188180 SPOKWWTP1	
CL5-PCB-93/95/98/100/102	J	69.2	188180 SPOKWWTP1	
CL5-PCB-94	U	0.993	188180 SPOKWWTP1	
CL5-PCB-96	U	0.521	188180 SPOKWWTP1	
CL5-PCB-103	U	0.825	188180 SPOKWWTP1	
CL5-PCB-104	U	0.502	188180 SPOKWWTP1	
CL5-PCB-105	J	22.2	188180 SPOKWWTP1	
CL5-PCB-106	U	1.14	188180 SPOKWWTP1	
CL5-PCB-107/124	UJ	2.42	188180 SPOKWWTP1	
CL5-PCB-109	UJ	3.09	188180 SPOKWWTP1	
CL5-PCB-110/115		76.3	188180 SPOKWWTP1	
CL5-PCB-111	U	0.657	188180 SPOKWWTP1	
CL5-PCB-112	U	0.629	188180 SPOKWWTP1	
CL5-PCB-114	UJ	1.74	188180 SPOKWWTP1	
CL5-PCB-118		55.8	188180 SPOKWWTP1	
CL5-PCB-120	U	0.632	188180 SPOKWWTP1	
CL5-PCB-121	U	0.689	188180 SPOKWWTP1	
CL5-PCB-122	U	1.39	188180 SPOKWWTP1	
CL5-PCB-123	UJ	2.13	188180 SPOKWWTP1	
CL5-PCB-126	U	1.61	188180 SPOKWWTP1	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	1.32	188180 SPOKWWTP1	U - not detected at or above the reported result.
CL6-PCB-128/166	J	6.85	188180 SPOKWWTP1	
CL6-PCB-129/138/160/163	J	52.3	188180 SPOKWWTP1	
CL6-PCB-130	NJ	3.58	188180 SPOKWWTP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	UJ	0.809	188180 SPOKWWTP1	
CL6-PCB-132	J	15.5	188180 SPOKWWTP1	
CL6-PCB-133	UJ	0.686	188180 SPOKWWTP1	J- concentration less than LMCL
CL6-PCB-134/143	J	3.38	188180 SPOKWWTP1	
CL6-PCB-135/151/154	J	18.3	188180 SPOKWWTP1	
CL6-PCB-136	NJ	7.51	188180 SPOKWWTP1	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	NJ	2.93	188180 SPOKWWTP1	
CL6-PCB-139/140	UJ	0.826	188180 SPOKWWTP1	
CL6-PCB-141	J	9.01	188180 SPOKWWTP1	
CL6-PCB-142	U	0.608	188180 SPOKWWTP1	
CL6-PCB-144	J	2.96	188180 SPOKWWTP1	
CL6-PCB-145	U	0.322	188180 SPOKWWTP1	
CL6-PCB-146	J	7.73	188180 SPOKWWTP1	
CL6-PCB-147/149	J	38.0	188180 SPOKWWTP1	
CL6-PCB-148	U	0.422	188180 SPOKWWTP1	
CL6-PCB-150	U	0.309	188180 SPOKWWTP1	
CL6-PCB-152	U	0.308	188180 SPOKWWTP1	
CL6-PCB-153/168	J	43.1	188180 SPOKWWTP1	
CL6-PCB-155	U	0.302	188180 SPOKWWTP1	
CL6-PCB-156/157	NJ	5.83	188180 SPOKWWTP1	
CL6-PCB-158	J	5.23	188180 SPOKWWTP1	
CL6-PCB-159	UJ	0.517	188180 SPOKWWTP1	
CL6-PCB-161	U	0.410	188180 SPOKWWTP1	
CL6-PCB-162	UJ	0.492	188180 SPOKWWTP1	
CL6-PCB-164	J	3.78	188180 SPOKWWTP1	
CL6-PCB-165	U	0.484	188180 SPOKWWTP1	
CL6-PCB-167	J	1.79	188180 SPOKWWTP1	
CL6-PCB-169	U	0.444	188180 SPOKWWTP1	
CL7-PCB-170	J	8.01	188180 SPOKWWTP1	
CL7-PCB-171/173	NJ	2.84	188180 SPOKWWTP1	
CL7-PCB-172	UJ	1.69	188180 SPOKWWTP1	
CL7-PCB-174	J	10.2	188180 SPOKWWTP1	
CL7-PCB-175	U	0.496	188180 SPOKWWTP1	
CL7-PCB-176	UJ	1.69	188180 SPOKWWTP1	
CL7-PCB-177	J	5.31	188180 SPOKWWTP1	
CL7-PCB-178	UJ	2.43	188180 SPOKWWTP1	
CL7-PCB-179	J	5.13	188180 SPOKWWTP1	
CL7-PCB-180/193	J	20.3	188180 SPOKWWTP1	
CL7-PCB-181	U	0.492	188180 SPOKWWTP1	
CL7-PCB-182	U	0.496	188180 SPOKWWTP1	
CL7-PCB-183/185	U	0.487	188180 SPOKWWTP1	
CL7-PCB-184	U	0.364	188180 SPOKWWTP1	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.394	188180 SPOKWWTP1	U - not detected at or above the reported result.
CL7-PCB-187	J	14.5	188180 SPOKWWTP1	
CL7-PCB-188	U	0.360	188180 SPOKWWTP1	
CL7-PCB-189	UJ	0.346	188180 SPOKWWTP1	UJ - not detected at or above the reported estimated result.
CL7-PCB-190	J	2.33	188180 SPOKWWTP1	
CL7-PCB-191	U	0.380	188180 SPOKWWTP1	
CL7-PCB-192	U	0.404	188180 SPOKWWTP1	J- concentration less than LMCL
CL8-PCB-194	J	3.54	188180 SPOKWWTP1	
CL8-PCB-195	J	1.54	188180 SPOKWWTP1	
CL8-PCB-196	J	2.68	188180 SPOKWWTP1	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-197/200	U	0.333	188180 SPOKWWTP1	
CL8-PCB-198/199	J	6.51	188180 SPOKWWTP1	
CL8-PCB-201	UJ	1.11	188180 SPOKWWTP1	
CL8-PCB-202	J	2.15	188180 SPOKWWTP1	
CL8-PCB-203	NJ	4.34	188180 SPOKWWTP1	
CL8-PCB-204	U	0.341	188180 SPOKWWTP1	
CL8-PCB-205	UJ	0.368	188180 SPOKWWTP1	
CL9-PCB-206	UJ	3.54	188180 SPOKWWTP1	
CL9-PCB-207	U	0.808	188180 SPOKWWTP1	
CL9-PCB-208	UJ	1.78	188180 SPOKWWTP1	
CL10-PCB-209	UJ	2.52	188180 SPOKWWTP1	
Total PCB Congeners		1,813	pg/L	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 2)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	11.6	188185 SPOKWWTP2	U - not detected at or above the reported result.
CL1-PCB-2	UJ	1.50	188185 SPOKWWTP2	
CL1-PCB-3	UJ	5.48	188185 SPOKWWTP2	
CL2-PCB-4		43.8	188185 SPOKWWTP2	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	1.38	188185 SPOKWWTP2	
CL2-PCB-6	UJ	7.59	188185 SPOKWWTP2	
CL2-PCB-7	UJ	1.83	188185 SPOKWWTP2	J- concentration less than LMCL
CL2-PCB-8		34.7	188185 SPOKWWTP2	
CL2-PCB-9	UJ	2.97	188185 SPOKWWTP2	
CL2-PCB-10	U	1.27	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11	UJ	58.9	188185 SPOKWWTP2	
CL2-PCB-12/13	UJ	2.70	188185 SPOKWWTP2	
CL2-PCB-14	U	1.30	188185 SPOKWWTP2	
CL2-PCB-15		29.1	188185 SPOKWWTP2	
CL3-PCB-16		34.2	188185 SPOKWWTP2	
CL3-PCB-17		32.4	188185 SPOKWWTP2	
CL3-PCB-18/30		74.8	188185 SPOKWWTP2	
CL3-PCB-19	J	11.0	188185 SPOKWWTP2	
CL3-PCB-20/28		73.9	188185 SPOKWWTP2	
CL3-PCB-21/33	J	25.6	188185 SPOKWWTP2	
CL3-PCB-22	J	21.7	188185 SPOKWWTP2	
CL3-PCB-23	U	0.670	188185 SPOKWWTP2	
CL3-PCB-24	UJ	1.67	188185 SPOKWWTP2	
CL3-PCB-25	J	4.46	188185 SPOKWWTP2	
CL3-PCB-26/29	J	13.3	188185 SPOKWWTP2	
CL3-PCB-27	NJ	4.85	188185 SPOKWWTP2	
CL3-PCB-31		73.6	188185 SPOKWWTP2	
CL3-PCB-32	J	22.1	188185 SPOKWWTP2	
CL3-PCB-34	U	0.680	188185 SPOKWWTP2	
CL3-PCB-35	J	3.17	188185 SPOKWWTP2	
CL3-PCB-36	UJ	1.20	188185 SPOKWWTP2	
CL3-PCB-37	J	13.9	188185 SPOKWWTP2	
CL3-PCB-38	U	0.671	188185 SPOKWWTP2	
CL3-PCB-39	U	0.636	188185 SPOKWWTP2	
CL4-PCB-40/41/71	J	24.2	188185 SPOKWWTP2	
CL4-PCB-42	J	9.78	188185 SPOKWWTP2	
CL4-PCB-43	UJ	2.48	188185 SPOKWWTP2	
CL4-PCB-44/47/65	J	57.3	188185 SPOKWWTP2	
CL4-PCB-45/51	J	10.9	188185 SPOKWWTP2	
CL4-PCB-46	J	3.17	188185 SPOKWWTP2	
CL4-PCB-48	J	11.1	188185 SPOKWWTP2	
CL4-PCB-49/69	J	29.0	188185 SPOKWWTP2	
CL4-PCB-50/53	J	7.53	188185 SPOKWWTP2	
CL4-PCB-52		85.0	188185 SPOKWWTP2	
CL4-PCB-54	UJ	0.411	188185 SPOKWWTP2	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-55	U	0.700	188185 SPOKWWTP2	U - not detected at or above the reported result.
CL4-PCB-56	J	15.2	188185 SPOKWWTP2	
CL4-PCB-57	U	0.691	188185 SPOKWWTP2	
CL4-PCB-58	U	0.708	188185 SPOKWWTP2	UJ - not detected at or above the reported estimated result.
CL4-PCB-59/62/75	J	3.88	188185 SPOKWWTP2	
CL4-PCB-60	J	8.69	188185 SPOKWWTP2	
CL4-PCB-61/70/74/76	J	82.0	188185 SPOKWWTP2	J- concentration less than LMCL
CL4-PCB-63	J	1.53	188185 SPOKWWTP2	
CL4-PCB-64	J	20.7	188185 SPOKWWTP2	
CL4-PCB-66		32.4	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-67	UJ	1.24	188185 SPOKWWTP2	
CL4-PCB-68	UJ	0.792	188185 SPOKWWTP2	
CL4-PCB-72	U	0.672	188185 SPOKWWTP2	
CL4-PCB-73	U	0.319	188185 SPOKWWTP2	
CL4-PCB-77	J	3.41	188185 SPOKWWTP2	
CL4-PCB-78	U	0.724	188185 SPOKWWTP2	
CL4-PCB-79	J	2.08	188185 SPOKWWTP2	
CL4-PCB-80	U	0.656	188185 SPOKWWTP2	
CL4-PCB-81	U	0.740	188185 SPOKWWTP2	
CL5-PCB-82	J	9.09	188185 SPOKWWTP2	
CL5-PCB-83/99	J	38.2	188185 SPOKWWTP2	
CL5-PCB-84	J	20.9	188185 SPOKWWTP2	
CL5-PCB-85/116/117	J	11.2	188185 SPOKWWTP2	
CL5-PCB-86/87/97/108/119/125	J	53.8	188185 SPOKWWTP2	
CL5-PCB-88/91	J	9.55	188185 SPOKWWTP2	
CL5-PCB-89	UJ	0.841	188185 SPOKWWTP2	
CL5-PCB-90/101/113		75.2	188185 SPOKWWTP2	
CL5-PCB-92	J	13.7	188185 SPOKWWTP2	
CL5-PCB-93/95/98/100/102	U	0.578	188185 SPOKWWTP2	
CL5-PCB-94	U	0.629	188185 SPOKWWTP2	
CL5-PCB-96	UJ	0.677	188185 SPOKWWTP2	
CL5-PCB-103	U	0.529	188185 SPOKWWTP2	
CL5-PCB-104	U	0.430	188185 SPOKWWTP2	
CL5-PCB-105		25.7	188185 SPOKWWTP2	
CL5-PCB-106	U	1.34	188185 SPOKWWTP2	
CL5-PCB-107/124	UJ	2.68	188185 SPOKWWTP2	
CL5-PCB-109	J	4.97	188185 SPOKWWTP2	
CL5-PCB-110/115		86.1	188185 SPOKWWTP2	
CL5-PCB-111	U	0.437	188185 SPOKWWTP2	
CL5-PCB-112	U	0.436	188185 SPOKWWTP2	
CL5-PCB-114	UJ	1.84	188185 SPOKWWTP2	
CL5-PCB-118		64.3	188185 SPOKWWTP2	
CL5-PCB-120	U	0.425	188185 SPOKWWTP2	
CL5-PCB-121	U	0.440	188185 SPOKWWTP2	
CL5-PCB-122	U	1.61	188185 SPOKWWTP2	
CL5-PCB-123	UJ	3.03	188185 SPOKWWTP2	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-126	U	1.62	188185 SPOKWWTP2	U - not detected at or above the reported result.
CL5-PCB-127	U	1.42	188185 SPOKWWTP2	
CL6-PCB-128/166	J	9.22	188185 SPOKWWTP2	
CL6-PCB-129/138/160/163	J	71.9	188185 SPOKWWTP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-130	J	4.49	188185 SPOKWWTP2	
CL6-PCB-131	UJ	1.29	188185 SPOKWWTP2	
CL6-PCB-132	J	23.3	188185 SPOKWWTP2	J- concentration less than LMCL
CL6-PCB-133	U	0.992	188185 SPOKWWTP2	
CL6-PCB-134/143	J	3.06	188185 SPOKWWTP2	
CL6-PCB-135/151/154	J	21.8	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-136	J	8.24	188185 SPOKWWTP2	
CL6-PCB-137	J	3.63	188185 SPOKWWTP2	
CL6-PCB-139/140	UJ	0.889	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-141	J	10.3	188185 SPOKWWTP2	
CL6-PCB-142	U	1.02	188185 SPOKWWTP2	
CL6-PCB-144	J	3.68	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-145	U	0.377	188185 SPOKWWTP2	
CL6-PCB-146	J	9.83	188185 SPOKWWTP2	
CL6-PCB-147/149	J	49.2	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-148	U	0.505	188185 SPOKWWTP2	
CL6-PCB-150	U	0.354	188185 SPOKWWTP2	
CL6-PCB-152	U	0.353	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-153/168		54.7	188185 SPOKWWTP2	
CL6-PCB-155	U	0.322	188185 SPOKWWTP2	
CL6-PCB-156/157	J	7.74	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-158	J	6.91	188185 SPOKWWTP2	
CL6-PCB-159	U	0.701	188185 SPOKWWTP2	
CL6-PCB-161	U	0.699	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-162	U	0.678	188185 SPOKWWTP2	
CL6-PCB-164	J	4.64	188185 SPOKWWTP2	
CL6-PCB-165	U	0.754	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-167	NJ	2.27	188185 SPOKWWTP2	
CL6-PCB-169	U	0.693	188185 SPOKWWTP2	
CL7-PCB-170	J	10.0	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL7-PCB-171/173	NJ	3.20	188185 SPOKWWTP2	
CL7-PCB-172	UJ	2.11	188185 SPOKWWTP2	
CL7-PCB-174	J	11.9	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL7-PCB-175	UJ	0.742	188185 SPOKWWTP2	
CL7-PCB-176	UJ	1.81	188185 SPOKWWTP2	
CL7-PCB-177	J	9.81	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL7-PCB-178	UJ	2.40	188185 SPOKWWTP2	
CL7-PCB-179	J	6.22	188185 SPOKWWTP2	
CL7-PCB-180/193	J	28.2	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL7-PCB-181	UJ	0.354	188185 SPOKWWTP2	
CL7-PCB-182	U	0.342	188185 SPOKWWTP2	
CL7-PCB-183/185	J	8.96	188185 SPOKWWTP2	

Appendix B - Results of Low-level Congener Analyses

City of Spokane WWTP final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-184	UJ	0.332	188185 SPOKWWTP2	U - not detected at or above the reported result.
CL7-PCB-186	U	0.277	188185 SPOKWWTP2	
CL7-PCB-187	J	17.2	188185 SPOKWWTP2	
CL7-PCB-188	UJ	0.342	188185 SPOKWWTP2	
CL7-PCB-189	UJ	0.403	188185 SPOKWWTP2	UJ - not detected at or above the reported estimated result.
CL7-PCB-190	NJ	2.80	188185 SPOKWWTP2	
CL7-PCB-191	UJ	0.308	188185 SPOKWWTP2	
CL7-PCB-192	U	0.285	188185 SPOKWWTP2	
CL8-PCB-194	NJ	6.12	188185 SPOKWWTP2	
CL8-PCB-195	J	1.88	188185 SPOKWWTP2	
CL8-PCB-196	NJ	3.19	188185 SPOKWWTP2	
CL8-PCB-197/200	J	1.29	188185 SPOKWWTP2	J- concentration less than LMCL
CL8-PCB-198/199	NJ	8.73	188185 SPOKWWTP2	
CL8-PCB-201	J	1.31	188185 SPOKWWTP2	
CL8-PCB-202	J	2.49	188185 SPOKWWTP2	
CL8-PCB-203	NJ	6.09	188185 SPOKWWTP2	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-204	UJ	0.304	188185 SPOKWWTP2	
CL8-PCB-205	UJ	0.612	188185 SPOKWWTP2	
CL9-PCB-206	J	5.48	188185 SPOKWWTP2	
CL9-PCB-207	U	0.854	188185 SPOKWWTP2	
CL9-PCB-208	UJ	2.47	188185 SPOKWWTP2	
CL10-PCB-209	UJ	4.44	188185 SPOKWWTP2	
Total PCB Congeners		1,767	pg/L	

Appendix B - Results of Low-level Congener Analyses

Inland Empire final effluent

congener/congener group	qualifier	result (pg/L)	sampling station
CL1-PCB-1	UJ	5.73	188181 INLAND
CL1-PCB-2	U	1.96	188181 INLAND
CL1-PCB-3	UJ	2.29	188181 INLAND
CL2-PCB-4	UJ	14.1	188181 INLAND
CL2-PCB-5	U	1.11	188181 INLAND
CL2-PCB-6	UJ	3.68	188181 INLAND
CL2-PCB-7	UJ	1.06	188181 INLAND
CL2-PCB-8	UJ	13.6	188181 INLAND
CL2-PCB-9	UJ	1.32	188181 INLAND
CL2-PCB-10	UJ	1.16	188181 INLAND
CL2-PCB-11		394	188181 INLAND
CL2-PCB-12/13	J	8.51	188181 INLAND
CL2-PCB-14	U	1.08	188181 INLAND
CL2-PCB-15	J	21.8	188181 INLAND
CL3-PCB-16	J	22.4	188181 INLAND
CL3-PCB-17	J	23.0	188181 INLAND
CL3-PCB-18/30		82.1	188181 INLAND
CL3-PCB-19	J	14.7	188181 INLAND
CL3-PCB-20/28		104	188181 INLAND
CL3-PCB-21/33	J	29.0	188181 INLAND
CL3-PCB-22		44.1	188181 INLAND
CL3-PCB-23	U	0.513	188181 INLAND
CL3-PCB-24	UJ	1.66	188181 INLAND
CL3-PCB-25	J	4.29	188181 INLAND
CL3-PCB-26/29	J	13.6	188181 INLAND
CL3-PCB-27	J	6.74	188181 INLAND
CL3-PCB-31		94.9	188181 INLAND
CL3-PCB-32		34.0	188181 INLAND
CL3-PCB-34	U	0.529	188181 INLAND
CL3-PCB-35	J	4.52	188181 INLAND
CL3-PCB-36	U	0.491	188181 INLAND
CL3-PCB-37	J	22.4	188181 INLAND
CL3-PCB-38	U	0.523	188181 INLAND
CL3-PCB-39	UJ	0.494	188181 INLAND
CL4-PCB-40/41/71	J	72.5	188181 INLAND
CL4-PCB-42		31.7	188181 INLAND
CL4-PCB-43	J	4.94	188181 INLAND
CL4-PCB-44/47/65		120	188181 INLAND
CL4-PCB-45/51	J	26.7	188181 INLAND
CL4-PCB-46	J	9.61	188181 INLAND
CL4-PCB-48	J	24.4	188181 INLAND
CL4-PCB-49/69		67.1	188181 INLAND
CL4-PCB-50/53	J	19.0	188181 INLAND
CL4-PCB-52		135	188181 INLAND
CL4-PCB-54	UJ	0.416	188181 INLAND

U - not detected at or above the reported result.

UJ - not detected at or above the reported estimated result.

J- concentration less than LMCL

NJ- peak detected, but did not meet quantification criteria.

Appendix B - Results of Low-level Congener Analyses

Inland Empire final effluent (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-55	U	1.10	188181 INLAND	U - not detected at or above the reported result.
CL4-PCB-56		51.8	188181 INLAND	
CL4-PCB-57	U	1.08	188181 INLAND	
CL4-PCB-58	U	1.10	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL4-PCB-59/62/75	J	9.91	188181 INLAND	
CL4-PCB-60		33.2	188181 INLAND	
CL4-PCB-61/70/74/76		179	188181 INLAND	
CL4-PCB-63	J	4.22	188181 INLAND	
CL4-PCB-64		58.9	188181 INLAND	
CL4-PCB-66		94.0	188181 INLAND	J- concentration less than LMCL
CL4-PCB-67	J	2.04	188181 INLAND	
CL4-PCB-68	U	1.01	188181 INLAND	
CL4-PCB-72	U	1.04	188181 INLAND	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-73	U	0.385	188181 INLAND	
CL4-PCB-77	J	8.45	188181 INLAND	
CL4-PCB-78	U	1.10	188181 INLAND	
CL4-PCB-79	NJ	1.98	188181 INLAND	
CL4-PCB-80	U	1.03	188181 INLAND	
CL4-PCB-81	U	1.13	188181 INLAND	
CL5-PCB-82	NJ	9.99	188181 INLAND	
CL5-PCB-83/99	J	39.7	188181 INLAND	
CL5-PCB-84	J	22.0	188181 INLAND	
CL5-PCB-85/116/117	J	12.5	188181 INLAND	
CL5-PCB-86/87/97/108/119/125	J	47.8	188181 INLAND	
CL5-PCB-88/91	J	11.6	188181 INLAND	
CL5-PCB-89	UJ	1.77	188181 INLAND	
CL5-PCB-90/101/113	J	55.0	188181 INLAND	
CL5-PCB-92	J	9.57	188181 INLAND	
CL5-PCB-93/95/98/100/102	J	51.6	188181 INLAND	
CL5-PCB-94	U	1.34	188181 INLAND	
CL5-PCB-96	U	0.700	188181 INLAND	
CL5-PCB-103	U	1.11	188181 INLAND	
CL5-PCB-104	U	0.623	188181 INLAND	
CL5-PCB-105		26.9	188181 INLAND	
CL5-PCB-106	U	0.497	188181 INLAND	
CL5-PCB-107/124	UJ	2.09	188181 INLAND	
CL5-PCB-109	J	4.48	188181 INLAND	
CL5-PCB-110/115		65.2	188181 INLAND	
CL5-PCB-111	U	0.884	188181 INLAND	
CL5-PCB-112	U	0.846	188181 INLAND	
CL5-PCB-114	UJ	2.31	188181 INLAND	
CL5-PCB-118		50.6	188181 INLAND	
CL5-PCB-120	U	0.851	188181 INLAND	
CL5-PCB-121	U	0.929	188181 INLAND	
CL5-PCB-122	UJ	1.08	188181 INLAND	

Appendix B - Results of Low-level Congener Analyses

Inland Empire final effluent (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-123	UJ	1.00	188181 INLAND	U - not detected at or above the reported result.
CL5-PCB-126	U	0.652	188181 INLAND	
CL5-PCB-127	U	0.577	188181 INLAND	
CL6-PCB-128/166	J	4.30	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-129/138/160/163	J	25.1	188181 INLAND	
CL6-PCB-130	UJ	2.41	188181 INLAND	
CL6-PCB-131	U	0.883	188181 INLAND	J- concentration less than LMCL
CL6-PCB-132	J	9.73	188181 INLAND	
CL6-PCB-133	UJ	1.05	188181 INLAND	
CL6-PCB-134/143	UJ	1.26	188181 INLAND	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-135/151/154	NJ	8.46	188181 INLAND	
CL6-PCB-136	J	3.30	188181 INLAND	
CL6-PCB-137	UJ	1.96	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-139/140	U	0.757	188181 INLAND	
CL6-PCB-141	J	5.45	188181 INLAND	
CL6-PCB-142	U	0.823	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-144	UJ	1.24	188181 INLAND	
CL6-PCB-145	U	0.401	188181 INLAND	
CL6-PCB-146	J	5.01	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-147/149	J	21.6	188181 INLAND	
CL6-PCB-148	U	0.526	188181 INLAND	
CL6-PCB-150	U	0.386	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-152	UJ	0.432	188181 INLAND	
CL6-PCB-153/168	J	20.8	188181 INLAND	
CL6-PCB-155	U	0.341	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-156/157	J	3.31	188181 INLAND	
CL6-PCB-158	J	3.14	188181 INLAND	
CL6-PCB-159	U	0.581	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-161	U	0.555	188181 INLAND	
CL6-PCB-162	U	0.571	188181 INLAND	
CL6-PCB-164	UJ	1.59	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL6-PCB-165	U	0.656	188181 INLAND	
CL6-PCB-167	UJ	1.21	188181 INLAND	
CL6-PCB-169	U	0.617	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL7-PCB-170	J	4.56	188181 INLAND	
CL7-PCB-171/173	UJ	1.68	188181 INLAND	
CL7-PCB-172	UJ	0.828	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL7-PCB-174	J	4.99	188181 INLAND	
CL7-PCB-175	U	0.495	188181 INLAND	
CL7-PCB-176	U	0.383	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL7-PCB-177	J	3.47	188181 INLAND	
CL7-PCB-178	UJ	1.09	188181 INLAND	
CL7-PCB-179	NJ	2.72	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL7-PCB-180/193	J	9.85	188181 INLAND	
CL7-PCB-181	U	0.492	188181 INLAND	
CL7-PCB-182	U	0.495	188181 INLAND	

Appendix B - Results of Low-level Congener Analyses

Inland Empire final effluent (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-183/185	NJ	3.48	188181 INLAND	U - not detected at or above the reported result.
CL7-PCB-184	U	0.363	188181 INLAND	
CL7-PCB-186	U	0.393	188181 INLAND	
CL7-PCB-187	NJ	5.51	188181 INLAND	UJ - not detected at or above the reported estimated result.
CL7-PCB-188	U	0.343	188181 INLAND	
CL7-PCB-189	U	0.203	188181 INLAND	
CL7-PCB-190	UJ	1.30	188181 INLAND	J- concentration less than LMCL
CL7-PCB-191	U	0.379	188181 INLAND	
CL7-PCB-192	U	0.403	188181 INLAND	
CL8-PCB-194	J	1.80	188181 INLAND	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-195	UJ	0.653	188181 INLAND	
CL8-PCB-196	UJ	1.24	188181 INLAND	
CL8-PCB-197/200	U	0.331	188181 INLAND	
CL8-PCB-198/199	J	2.37	188181 INLAND	
CL8-PCB-201	U	0.342	188181 INLAND	
CL8-PCB-202	UJ	0.531	188181 INLAND	
CL8-PCB-203	NJ	1.82	188181 INLAND	
CL8-PCB-204	U	0.339	188181 INLAND	
CL8-PCB-205	U	0.310	188181 INLAND	
CL9-PCB-206	UJ	1.20	188181 INLAND	
CL9-PCB-207	U	0.977	188181 INLAND	
CL9-PCB-208	U	1.04	188181 INLAND	
CL10-PCB-209	UJ	1.26	188181 INLAND	
Total PCB Congeners		2,436	pg/L	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 1)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	6.19	188184 LIBLAKE 1	U - not detected at or above the reported result.
CL1-PCB-2	U	2.49	188184 LIBLAKE 1	
CL1-PCB-3	UJ	6.57	188184 LIBLAKE 1	
CL2-PCB-4	UJ	12.7	188184 LIBLAKE 1	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	1.14	188184 LIBLAKE 1	
CL2-PCB-6	UJ	4.12	188184 LIBLAKE 1	
CL2-PCB-7	U	1.05	188184 LIBLAKE 1	J- concentration less than LMCL
CL2-PCB-8	UJ	14.2	188184 LIBLAKE 1	
CL2-PCB-9	UJ	1.83	188184 LIBLAKE 1	
CL2-PCB-10	U	1.07	188184 LIBLAKE 1	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11	UJ	76.3	188184 LIBLAKE 1	
CL2-PCB-12/13	UJ	3.45	188184 LIBLAKE 1	
CL2-PCB-14	U	1.11	188184 LIBLAKE 1	
CL2-PCB-15	J	22.9	188184 LIBLAKE 1	
CL3-PCB-16	J	19.2	188184 LIBLAKE 1	
CL3-PCB-17	J	21.8	188184 LIBLAKE 1	
CL3-PCB-18/30		51.3	188184 LIBLAKE 1	
CL3-PCB-19	UJ	6.25	188184 LIBLAKE 1	
CL3-PCB-20/28		73.0	188184 LIBLAKE 1	
CL3-PCB-21/33	UJ	16.2	188184 LIBLAKE 1	
CL3-PCB-22	J	20.7	188184 LIBLAKE 1	
CL3-PCB-23	U	0.560	188184 LIBLAKE 1	
CL3-PCB-24	U	0.538	188184 LIBLAKE 1	
CL3-PCB-25	J	4.79	188184 LIBLAKE 1	
CL3-PCB-26/29	J	12.6	188184 LIBLAKE 1	
CL3-PCB-27	NJ	3.83	188184 LIBLAKE 1	
CL3-PCB-31		65.5	188184 LIBLAKE 1	
CL3-PCB-32	J	14.2	188184 LIBLAKE 1	
CL3-PCB-34	U	0.577	188184 LIBLAKE 1	
CL3-PCB-35	J	5.01	188184 LIBLAKE 1	
CL3-PCB-36	UJ	2.08	188184 LIBLAKE 1	
CL3-PCB-37	J	15.7	188184 LIBLAKE 1	
CL3-PCB-38	U	0.571	188184 LIBLAKE 1	
CL3-PCB-39	U	0.525	188184 LIBLAKE 1	
CL4-PCB-40/41/71	J	26.0	188184 LIBLAKE 1	
CL4-PCB-42	J	11.5	188184 LIBLAKE 1	
CL4-PCB-43	UJ	2.20	188184 LIBLAKE 1	
CL4-PCB-44/47/65	J	67.3	188184 LIBLAKE 1	
CL4-PCB-45/51	J	10.7	188184 LIBLAKE 1	
CL4-PCB-46	J	2.95	188184 LIBLAKE 1	
CL4-PCB-48	J	11.4	188184 LIBLAKE 1	
CL4-PCB-49/69	J	32.9	188184 LIBLAKE 1	
CL4-PCB-50/53	J	7.12	188184 LIBLAKE 1	
CL4-PCB-52		94.3	188184 LIBLAKE 1	
CL4-PCB-54	U	0.414	188184 LIBLAKE 1	
CL4-PCB-55	U	1.40	188184 LIBLAKE 1	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56	J	20.4	188184 LIBLAKE 1	U - not detected at or above the reported result.
CL4-PCB-57	U	1.39	188184 LIBLAKE 1	
CL4-PCB-58	U	1.41	188184 LIBLAKE 1	
CL4-PCB-59/62/75	J	4.04	188184 LIBLAKE 1	UJ - not detected at or above the reported estimated result.
CL4-PCB-60	J	11.0	188184 LIBLAKE 1	
CL4-PCB-61/70/74/76		108	188184 LIBLAKE 1	
CL4-PCB-63	J	1.93	188184 LIBLAKE 1	
CL4-PCB-64	J	21.9	188184 LIBLAKE 1	J- concentration less than LMCL
CL4-PCB-66		40.8	188184 LIBLAKE 1	
CL4-PCB-67	U	1.21	188184 LIBLAKE 1	
CL4-PCB-68	J	2.35	188184 LIBLAKE 1	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-72	U	1.33	188184 LIBLAKE 1	
CL4-PCB-73	U	0.401	188184 LIBLAKE 1	
CL4-PCB-77	J	3.82	188184 LIBLAKE 1	
CL4-PCB-78	U	1.41	188184 LIBLAKE 1	
CL4-PCB-79	J	2.42	188184 LIBLAKE 1	
CL4-PCB-80	U	1.32	188184 LIBLAKE 1	
CL4-PCB-81	U	1.44	188184 LIBLAKE 1	
CL5-PCB-82	J	8.52	188184 LIBLAKE 1	
CL5-PCB-83/99		53.1	188184 LIBLAKE 1	
CL5-PCB-84		24.2	188184 LIBLAKE 1	
CL5-PCB-85/116/117	J	10.6	188184 LIBLAKE 1	
CL5-PCB-86/87/97/108/119/125	J	63.3	188184 LIBLAKE 1	
CL5-PCB-88/91	NJ	11.4	188184 LIBLAKE 1	
CL5-PCB-89	UJ	0.993	188184 LIBLAKE 1	
CL5-PCB-90/101/113		97.2	188184 LIBLAKE 1	
CL5-PCB-92	J	17.1	188184 LIBLAKE 1	
CL5-PCB-93/95/98/100/102	J	77.8	188184 LIBLAKE 1	
CL5-PCB-94	U	0.701	188184 LIBLAKE 1	
CL5-PCB-96	U	0.476	188184 LIBLAKE 1	
CL5-PCB-103	UJ	0.800	188184 LIBLAKE 1	
CL5-PCB-104	U	0.460	188184 LIBLAKE 1	
CL5-PCB-105		27.3	188184 LIBLAKE 1	
CL5-PCB-106	U	1.18	188184 LIBLAKE 1	
CL5-PCB-107/124	UJ	3.22	188184 LIBLAKE 1	
CL5-PCB-109	J	4.54	188184 LIBLAKE 1	
CL5-PCB-110/115		91.5	188184 LIBLAKE 1	
CL5-PCB-111	U	0.464	188184 LIBLAKE 1	
CL5-PCB-112	U	0.444	188184 LIBLAKE 1	
CL5-PCB-114	UJ	1.43	188184 LIBLAKE 1	
CL5-PCB-118		77.0	188184 LIBLAKE 1	
CL5-PCB-120	U	0.446	188184 LIBLAKE 1	
CL5-PCB-121	U	0.487	188184 LIBLAKE 1	
CL5-PCB-122	U	1.44	188184 LIBLAKE 1	
CL5-PCB-123	J	6.13	188184 LIBLAKE 1	
CL5-PCB-126	U	1.66	188184 LIBLAKE 1	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	1.37	188184 LIBLAKE 1	U - not detected at or above the reported result.
CL6-PCB-128/166	J	9.06	188184 LIBLAKE 1	
CL6-PCB-129/138/160/163	J	85.1	188184 LIBLAKE 1	
CL6-PCB-130	J	4.55	188184 LIBLAKE 1	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	UJ	1.29	188184 LIBLAKE 1	
CL6-PCB-132	J	21.2	188184 LIBLAKE 1	
CL6-PCB-133	U	0.748	188184 LIBLAKE 1	J- concentration less than LMCL
CL6-PCB-134/143	J	3.70	188184 LIBLAKE 1	
CL6-PCB-135/151/154	J	26.4	188184 LIBLAKE 1	
CL6-PCB-136	J	10.7	188184 LIBLAKE 1	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	U	0.787	188184 LIBLAKE 1	
CL6-PCB-139/140	UJ	1.32	188184 LIBLAKE 1	
CL6-PCB-141	J	14.5	188184 LIBLAKE 1	
CL6-PCB-142	U	0.757	188184 LIBLAKE 1	
CL6-PCB-144	J	3.31	188184 LIBLAKE 1	
CL6-PCB-145	U	0.429	188184 LIBLAKE 1	
CL6-PCB-146	J	12.0	188184 LIBLAKE 1	
CL6-PCB-147/149		54.7	188184 LIBLAKE 1	
CL6-PCB-148	U	0.563	188184 LIBLAKE 1	
CL6-PCB-150	U	0.413	188184 LIBLAKE 1	
CL6-PCB-152	U	0.412	188184 LIBLAKE 1	
CL6-PCB-153/168		75.6	188184 LIBLAKE 1	
CL6-PCB-155	UJ	0.585	188184 LIBLAKE 1	
CL6-PCB-156/157	J	10.0	188184 LIBLAKE 1	
CL6-PCB-158	J	7.20	188184 LIBLAKE 1	
CL6-PCB-159	U	0.534	188184 LIBLAKE 1	
CL6-PCB-161	U	0.511	188184 LIBLAKE 1	
CL6-PCB-162	U	0.525	188184 LIBLAKE 1	
CL6-PCB-164	U	0.559	188184 LIBLAKE 1	
CL6-PCB-165	U	0.603	188184 LIBLAKE 1	
CL6-PCB-167	J	3.18	188184 LIBLAKE 1	
CL6-PCB-169	U	0.586	188184 LIBLAKE 1	
CL7-PCB-170	J	13.6	188184 LIBLAKE 1	
CL7-PCB-171/173	J	4.16	188184 LIBLAKE 1	
CL7-PCB-172	NJ	3.07	188184 LIBLAKE 1	
CL7-PCB-174	J	13.9	188184 LIBLAKE 1	
CL7-PCB-175	UJ	0.467	188184 LIBLAKE 1	
CL7-PCB-176	UJ	1.95	188184 LIBLAKE 1	
CL7-PCB-177	J	8.96	188184 LIBLAKE 1	
CL7-PCB-178	NJ	3.95	188184 LIBLAKE 1	
CL7-PCB-179	J	9.22	188184 LIBLAKE 1	
CL7-PCB-180/193	J	41.4	188184 LIBLAKE 1	
CL7-PCB-181	U	0.434	188184 LIBLAKE 1	
CL7-PCB-182	U	0.437	188184 LIBLAKE 1	
CL7-PCB-183/185	J	11.1	188184 LIBLAKE 1	
CL7-PCB-184	UJ	0.995	188184 LIBLAKE 1	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.347	188184 LIBLAKE 1	U - not detected at or above the reported result.
CL7-PCB-187		26.1	188184 LIBLAKE 1	
CL7-PCB-188	U	0.312	188184 LIBLAKE 1	
CL7-PCB-189	UJ	0.736	188184 LIBLAKE 1	UJ - not detected at or above the reported estimated result.
CL7-PCB-190	J	3.28	188184 LIBLAKE 1	
CL7-PCB-191	UJ	0.367	188184 LIBLAKE 1	J- concentration less than LMCL
CL7-PCB-192	U	0.356	188184 LIBLAKE 1	
CL8-PCB-194	J	8.53	188184 LIBLAKE 1	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-195	J	2.78	188184 LIBLAKE 1	
CL8-PCB-196	NJ	4.62	188184 LIBLAKE 1	
CL8-PCB-197/200	J	1.64	188184 LIBLAKE 1	
CL8-PCB-198/199	J	11.6	188184 LIBLAKE 1	
CL8-PCB-201	J	1.59	188184 LIBLAKE 1	
CL8-PCB-202	J	3.78	188184 LIBLAKE 1	
CL8-PCB-203	J	8.15	188184 LIBLAKE 1	
CL8-PCB-204	U	0.343	188184 LIBLAKE 1	
CL8-PCB-205	UJ	0.460	188184 LIBLAKE 1	
CL9-PCB-206	J	7.59	188184 LIBLAKE 1	
CL9-PCB-207	UJ	1.08	188184 LIBLAKE 1	
CL9-PCB-208	UJ	2.93	188184 LIBLAKE 1	
CL10-PCB-209	J	6.15	188184 LIBLAKE 1	
Total PCB Congeners		1,917	pg/L	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 2)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	5.05	188188 LIBLAKE 2	U - not detected at or above the reported result.
CL1-PCB-2	U	1.31	188188 LIBLAKE 2	
CL1-PCB-3	UJ	5.69	188188 LIBLAKE 2	
CL2-PCB-4	UJ	10.3	188188 LIBLAKE 2	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	1.10	188188 LIBLAKE 2	
CL2-PCB-6	UJ	2.91	188188 LIBLAKE 2	
CL2-PCB-7	U	0.987	188188 LIBLAKE 2	J- concentration less than LMCL
CL2-PCB-8	UJ	8.15	188188 LIBLAKE 2	
CL2-PCB-9	U	0.992	188188 LIBLAKE 2	
CL2-PCB-10	U	1.01	188188 LIBLAKE 2	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11	UJ	45.7	188188 LIBLAKE 2	
CL2-PCB-12/13	UJ	2.59	188188 LIBLAKE 2	
CL2-PCB-14	U	1.04	188188 LIBLAKE 2	
CL2-PCB-15	J	17.9	188188 LIBLAKE 2	
CL3-PCB-16	J	12.5	188188 LIBLAKE 2	
CL3-PCB-17	J	15.3	188188 LIBLAKE 2	
CL3-PCB-18/30	J	39.5	188188 LIBLAKE 2	
CL3-PCB-19	UJ	5.71	188188 LIBLAKE 2	
CL3-PCB-20/28		57.9	188188 LIBLAKE 2	
CL3-PCB-21/33	UJ	10.4	188188 LIBLAKE 2	
CL3-PCB-22	J	16.6	188188 LIBLAKE 2	
CL3-PCB-23	U	0.832	188188 LIBLAKE 2	
CL3-PCB-24	UJ	0.576	188188 LIBLAKE 2	
CL3-PCB-25	UJ	2.88	188188 LIBLAKE 2	
CL3-PCB-26/29	J	10.1	188188 LIBLAKE 2	
CL3-PCB-27	J	2.81	188188 LIBLAKE 2	
CL3-PCB-31		51.3	188188 LIBLAKE 2	
CL3-PCB-32	J	11.3	188188 LIBLAKE 2	
CL3-PCB-34	U	0.844	188188 LIBLAKE 2	
CL3-PCB-35	J	4.29	188188 LIBLAKE 2	
CL3-PCB-36	UJ	1.45	188188 LIBLAKE 2	
CL3-PCB-37	J	12.0	188188 LIBLAKE 2	
CL3-PCB-38	U	0.833	188188 LIBLAKE 2	
CL3-PCB-39	U	0.790	188188 LIBLAKE 2	
CL4-PCB-40/41/71	J	19.2	188188 LIBLAKE 2	
CL4-PCB-42	J	8.38	188188 LIBLAKE 2	
CL4-PCB-43	UJ	1.72	188188 LIBLAKE 2	
CL4-PCB-44/47/65	J	46.1	188188 LIBLAKE 2	
CL4-PCB-45/51	J	6.37	188188 LIBLAKE 2	
CL4-PCB-46	UJ	2.19	188188 LIBLAKE 2	
CL4-PCB-48	J	8.15	188188 LIBLAKE 2	
CL4-PCB-49/69	J	23.6	188188 LIBLAKE 2	
CL4-PCB-50/53	J	4.90	188188 LIBLAKE 2	
CL4-PCB-52		70.6	188188 LIBLAKE 2	
CL4-PCB-54	U	0.390	188188 LIBLAKE 2	
CL4-PCB-55	U	1.19	188188 LIBLAKE 2	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56	J	15.3	188188 LIBLAKE 2	U - not detected at or above the reported result.
CL4-PCB-57	U	1.18	188188 LIBLAKE 2	
CL4-PCB-58	U	1.21	188188 LIBLAKE 2	
CL4-PCB-59/62/75	J	3.44	188188 LIBLAKE 2	UJ - not detected at or above the reported estimated result.
CL4-PCB-60	J	10.2	188188 LIBLAKE 2	
CL4-PCB-61/70/74/76	J	83.5	188188 LIBLAKE 2	
CL4-PCB-63	UJ	1.32	188188 LIBLAKE 2	
CL4-PCB-64	J	18.6	188188 LIBLAKE 2	J- concentration less than LMCL
CL4-PCB-66		35.0	188188 LIBLAKE 2	
CL4-PCB-67	UJ	1.17	188188 LIBLAKE 2	
CL4-PCB-68	U	1.11	188188 LIBLAKE 2	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-72	U	1.15	188188 LIBLAKE 2	
CL4-PCB-73	U	0.328	188188 LIBLAKE 2	
CL4-PCB-77	J	3.70	188188 LIBLAKE 2	
CL4-PCB-78	U	1.23	188188 LIBLAKE 2	
CL4-PCB-79	J	2.99	188188 LIBLAKE 2	
CL4-PCB-80	U	1.12	188188 LIBLAKE 2	
CL4-PCB-81	U	1.19	188188 LIBLAKE 2	
CL5-PCB-82	NJ	8.53	188188 LIBLAKE 2	
CL5-PCB-83/99	J	44.6	188188 LIBLAKE 2	
CL5-PCB-84	J	19.2	188188 LIBLAKE 2	
CL5-PCB-85/116/117	J	11.5	188188 LIBLAKE 2	
CL5-PCB-86/87/97/108/119/125	J	52.9	188188 LIBLAKE 2	
CL5-PCB-88/91	J	8.54	188188 LIBLAKE 2	
CL5-PCB-89	U	2.11	188188 LIBLAKE 2	
CL5-PCB-90/101/113		79.4	188188 LIBLAKE 2	
CL5-PCB-92	J	14.5	188188 LIBLAKE 2	
CL5-PCB-93/95/98/100/102	J	62.0	188188 LIBLAKE 2	
CL5-PCB-94	U	2.05	188188 LIBLAKE 2	
CL5-PCB-96	U	1.03	188188 LIBLAKE 2	
CL5-PCB-103	U	1.72	188188 LIBLAKE 2	
CL5-PCB-104	U	1.18	188188 LIBLAKE 2	
CL5-PCB-105	J	22.8	188188 LIBLAKE 2	
CL5-PCB-106	U	2.15	188188 LIBLAKE 2	
CL5-PCB-107/124	UJ	2.78	188188 LIBLAKE 2	
CL5-PCB-109	J	4.53	188188 LIBLAKE 2	
CL5-PCB-110/115		80.7	188188 LIBLAKE 2	
CL5-PCB-111	U	1.43	188188 LIBLAKE 2	
CL5-PCB-112	U	1.42	188188 LIBLAKE 2	
CL5-PCB-114	U	2.16	188188 LIBLAKE 2	
CL5-PCB-118		67.4	188188 LIBLAKE 2	
CL5-PCB-120	U	1.39	188188 LIBLAKE 2	
CL5-PCB-121	U	1.44	188188 LIBLAKE 2	
CL5-PCB-122	U	2.59	188188 LIBLAKE 2	
CL5-PCB-123	UJ	4.13	188188 LIBLAKE 2	
CL5-PCB-126	U	2.42	188188 LIBLAKE 2	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	2.28	188188 LIBLAKE 2	U - not detected at or above the reported result.
CL6-PCB-128/166	J	8.65	188188 LIBLAKE 2	
CL6-PCB-129/138/160/163	J	68.0	188188 LIBLAKE 2	
CL6-PCB-130	J	3.65	188188 LIBLAKE 2	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	U	0.997	188188 LIBLAKE 2	
CL6-PCB-132	J	19.2	188188 LIBLAKE 2	
CL6-PCB-133	UJ	1.36	188188 LIBLAKE 2	J- concentration less than LMCL
CL6-PCB-134/143	J	2.94	188188 LIBLAKE 2	
CL6-PCB-135/151/154	J	22.4	188188 LIBLAKE 2	
CL6-PCB-136	J	8.14	188188 LIBLAKE 2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	J	3.99	188188 LIBLAKE 2	
CL6-PCB-139/140	U	0.858	188188 LIBLAKE 2	
CL6-PCB-141	J	9.81	188188 LIBLAKE 2	
CL6-PCB-142	U	0.987	188188 LIBLAKE 2	
CL6-PCB-144	NJ	2.18	188188 LIBLAKE 2	
CL6-PCB-145	U	0.330	188188 LIBLAKE 2	
CL6-PCB-146	J	9.10	188188 LIBLAKE 2	
CL6-PCB-147/149		47.0	188188 LIBLAKE 2	
CL6-PCB-148	U	0.442	188188 LIBLAKE 2	
CL6-PCB-150	U	0.310	188188 LIBLAKE 2	
CL6-PCB-152	U	0.309	188188 LIBLAKE 2	
CL6-PCB-153/168		64.6	188188 LIBLAKE 2	
CL6-PCB-155	UJ	0.716	188188 LIBLAKE 2	
CL6-PCB-156/157	J	8.67	188188 LIBLAKE 2	
CL6-PCB-158	J	6.55	188188 LIBLAKE 2	
CL6-PCB-159	U	0.679	188188 LIBLAKE 2	
CL6-PCB-161	U	0.677	188188 LIBLAKE 2	
CL6-PCB-162	U	0.656	188188 LIBLAKE 2	
CL6-PCB-164	J	3.20	188188 LIBLAKE 2	
CL6-PCB-165	U	0.730	188188 LIBLAKE 2	
CL6-PCB-167	J	2.48	188188 LIBLAKE 2	
CL6-PCB-169	U	0.664	188188 LIBLAKE 2	
CL7-PCB-170	J	11.8	188188 LIBLAKE 2	
CL7-PCB-171/173	NJ	2.86	188188 LIBLAKE 2	
CL7-PCB-172	UJ	1.99	188188 LIBLAKE 2	
CL7-PCB-174	J	11.7	188188 LIBLAKE 2	
CL7-PCB-175	U	0.508	188188 LIBLAKE 2	
CL7-PCB-176	UJ	1.57	188188 LIBLAKE 2	
CL7-PCB-177	J	7.36	188188 LIBLAKE 2	
CL7-PCB-178	NJ	3.82	188188 LIBLAKE 2	
CL7-PCB-179	J	6.30	188188 LIBLAKE 2	
CL7-PCB-180/193	J	34.3	188188 LIBLAKE 2	
CL7-PCB-181	U	0.504	188188 LIBLAKE 2	
CL7-PCB-182	U	0.496	188188 LIBLAKE 2	
CL7-PCB-183/185	J	9.31	188188 LIBLAKE 2	
CL7-PCB-184	UJ	1.26	188188 LIBLAKE 2	

Appendix B - Results of Low-level Congener Analyses

Liberty Lake WWTP final effluent (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.402	188188 LIBLAKE 2	U - not detected at or above the reported result.
CL7-PCB-187	J	22.1	188188 LIBLAKE 2	
CL7-PCB-188	U	0.375	188188 LIBLAKE 2	
CL7-PCB-189	U	0.665	188188 LIBLAKE 2	UJ - not detected at or above the reported estimated result.
CL7-PCB-190	J	3.12	188188 LIBLAKE 2	
CL7-PCB-191	U	0.395	188188 LIBLAKE 2	
CL7-PCB-192	U	0.414	188188 LIBLAKE 2	J- concentration less than LMCL
CL8-PCB-194	J	7.53	188188 LIBLAKE 2	
CL8-PCB-195	J	1.83	188188 LIBLAKE 2	
CL8-PCB-196	J	3.79	188188 LIBLAKE 2	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-197/200	NJ	1.50	188188 LIBLAKE 2	
CL8-PCB-198/199	J	12.7	188188 LIBLAKE 2	
CL8-PCB-201	J	1.81	188188 LIBLAKE 2	
CL8-PCB-202	J	3.63	188188 LIBLAKE 2	
CL8-PCB-203	J	7.98	188188 LIBLAKE 2	
CL8-PCB-204	UJ	0.431	188188 LIBLAKE 2	
CL8-PCB-205	U	1.29	188188 LIBLAKE 2	
CL9-PCB-206	J	5.84	188188 LIBLAKE 2	
CL9-PCB-207	U	1.96	188188 LIBLAKE 2	
CL9-PCB-208	UJ	2.47	188188 LIBLAKE 2	
CL10-PCB-209	J	5.15	188188 LIBLAKE 2	
Total PCB Congeners		1,543	pg/L	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 1)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	18.5	188182 SIP1	U - not detected at or above the reported result.
CL1-PCB-2	UJ	7.81	188182 SIP1	
CL1-PCB-3	UJ	12.0	188182 SIP1	
CL2-PCB-4		47.2	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	UJ	2.42	188182 SIP1	
CL2-PCB-6		23.8	188182 SIP1	
CL2-PCB-7	UJ	6.07	188182 SIP1	J- concentration less than LMCL
CL2-PCB-8		115	188182 SIP1	
CL2-PCB-9	J	12.0	188182 SIP1	
CL2-PCB-10	UJ	2.11	188182 SIP1	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11		362	188182 SIP1	
CL2-PCB-12/13	J	14.3	188182 SIP1	
CL2-PCB-14	U	0.708	188182 SIP1	
CL2-PCB-15		63.2	188182 SIP1	
CL3-PCB-16		73.8	188182 SIP1	
CL3-PCB-17		75.4	188182 SIP1	
CL3-PCB-18/30		159	188182 SIP1	
CL3-PCB-19	J	18.7	188182 SIP1	
CL3-PCB-20/28		241	188182 SIP1	
CL3-PCB-21/33		155	188182 SIP1	
CL3-PCB-22		90.9	188182 SIP1	
CL3-PCB-23	UJ	1.78	188182 SIP1	
CL3-PCB-24	J	5.11	188182 SIP1	
CL3-PCB-25	J	17.2	188182 SIP1	
CL3-PCB-26/29	J	45.2	188182 SIP1	
CL3-PCB-27	J	10.7	188182 SIP1	
CL3-PCB-31		280	188182 SIP1	
CL3-PCB-32		48.5	188182 SIP1	
CL3-PCB-34	UJ	0.948	188182 SIP1	
CL3-PCB-35	J	12.3	188182 SIP1	
CL3-PCB-36	UJ	2.21	188182 SIP1	
CL3-PCB-37		62.1	188182 SIP1	
CL3-PCB-38	U	0.463	188182 SIP1	
CL3-PCB-39	UJ	1.53	188182 SIP1	
CL4-PCB-40/41/71		123	188182 SIP1	
CL4-PCB-42		59.8	188182 SIP1	
CL4-PCB-43	J	8.86	188182 SIP1	
CL4-PCB-44/47/65		237	188182 SIP1	
CL4-PCB-45/51	J	40.1	188182 SIP1	
CL4-PCB-46	J	13.9	188182 SIP1	
CL4-PCB-48		48.3	188182 SIP1	
CL4-PCB-49/69		133	188182 SIP1	
CL4-PCB-50/53	J	27.7	188182 SIP1	
CL4-PCB-52		420	188182 SIP1	
CL4-PCB-54	UJ	0.676	188182 SIP1	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 1. cont'd)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56		83.9	188182 SIP1	U - not detected at or above the reported result.
CL4-PCB-57	U	2.06	188182 SIP1	
CL4-PCB-58	U	2.08	188182 SIP1	
CL4-PCB-59/62/75	J	19.3	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL4-PCB-60		49.1	188182 SIP1	
CL4-PCB-61/70/74/76		426	188182 SIP1	
CL4-PCB-63	J	7.96	188182 SIP1	
CL4-PCB-64		98.9	188182 SIP1	
CL4-PCB-66		176	188182 SIP1	J- concentration less than LMCL
CL4-PCB-67	J	6.08	188182 SIP1	
CL4-PCB-68	J	3.19	188182 SIP1	
CL4-PCB-72	U	1.97	188182 SIP1	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-73	U	0.450	188182 SIP1	
CL4-PCB-77		28.2	188182 SIP1	
CL4-PCB-78	U	2.09	188182 SIP1	
CL4-PCB-79	J	16.5	188182 SIP1	
CL4-PCB-80	U	1.96	188182 SIP1	
CL4-PCB-81	U	2.20	188182 SIP1	
CL5-PCB-82		43.4	188182 SIP1	
CL5-PCB-83/99		221	188182 SIP1	
CL5-PCB-84		102	188182 SIP1	
CL5-PCB-85/116/117		71.6	188182 SIP1	
CL5-PCB-86/87/97/108/119/125		274	188182 SIP1	
CL5-PCB-88/91	J	46.0	188182 SIP1	
CL5-PCB-89	J	4.32	188182 SIP1	
CL5-PCB-90/101/113		406	188182 SIP1	
CL5-PCB-92		70.7	188182 SIP1	
CL5-PCB-93/95/98/100/102		297	188182 SIP1	
CL5-PCB-94	U	1.42	188182 SIP1	
CL5-PCB-96	J	2.22	188182 SIP1	
CL5-PCB-103	UJ	1.79	188182 SIP1	
CL5-PCB-104	U	0.417	188182 SIP1	
CL5-PCB-105		147	188182 SIP1	
CL5-PCB-106	U	3.11	188182 SIP1	
CL5-PCB-107/124	J	13.0	188182 SIP1	
CL5-PCB-109		24.5	188182 SIP1	
CL5-PCB-110/115		436	188182 SIP1	
CL5-PCB-111	U	0.940	188182 SIP1	
CL5-PCB-112	U	0.900	188182 SIP1	
CL5-PCB-114	J	8.37	188182 SIP1	
CL5-PCB-118		362	188182 SIP1	
CL5-PCB-120	U	0.904	188182 SIP1	
CL5-PCB-121	U	0.987	188182 SIP1	
CL5-PCB-122	U	3.79	188182 SIP1	
CL5-PCB-123	J	7.55	188182 SIP1	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	3.61	188182 SIP1	U - not detected at or above the reported result.
CL6-PCB-128/166		62.5	188182 SIP1	
CL6-PCB-129/138/160/163		413	188182 SIP1	
CL6-PCB-130		25.0	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	J	5.32	188182 SIP1	
CL6-PCB-132		120	188182 SIP1	
CL6-PCB-133	J	5.30	188182 SIP1	J- concentration less than LMCL
CL6-PCB-134/143	J	17.9	188182 SIP1	
CL6-PCB-135/151/154	U	0.325	188182 SIP1	
CL6-PCB-136		42.6	188182 SIP1	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137		27.9	188182 SIP1	
CL6-PCB-139/140	J	6.60	188182 SIP1	
CL6-PCB-141		73.8	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-142	U	3.46	188182 SIP1	
CL6-PCB-144	J	17.4	188182 SIP1	
CL6-PCB-145	U	0.266	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-146		55.6	188182 SIP1	
CL6-PCB-147/149		272	188182 SIP1	
CL6-PCB-148	UJ	0.427	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-150	U	0.256	188182 SIP1	
CL6-PCB-152	UJ	0.516	188182 SIP1	
CL6-PCB-153/168		350	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-155	UJ	0.382	188182 SIP1	
CL6-PCB-156/157		56.5	188182 SIP1	
CL6-PCB-158		43.1	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-159	J	3.48	188182 SIP1	
CL6-PCB-161	U	2.34	188182 SIP1	
CL6-PCB-162	U	2.40	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-164		24.1	188182 SIP1	
CL6-PCB-165	U	2.76	188182 SIP1	
CL6-PCB-167	J	16.6	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL6-PCB-169	U	2.68	188182 SIP1	
CL7-PCB-170		77.7	188182 SIP1	
CL7-PCB-171/173	J	24.8	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL7-PCB-172	J	16.1	188182 SIP1	
CL7-PCB-174		92.6	188182 SIP1	
CL7-PCB-175	J	2.93	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL7-PCB-176	J	12.8	188182 SIP1	
CL7-PCB-177		49.0	188182 SIP1	
CL7-PCB-178	J	20.8	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL7-PCB-179		45.0	188182 SIP1	
CL7-PCB-180/193		215	188182 SIP1	
CL7-PCB-181	UJ	1.28	188182 SIP1	UJ - not detected at or above the reported estimated result.
CL7-PCB-182	U	0.532	188182 SIP1	
CL7-PCB-183/185		76.2	188182 SIP1	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 1, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.423	188182 SIP1	U - not detected at or above the reported result.
CL7-PCB-187		144	188182 SIP1	
CL7-PCB-188	U	0.344	188182 SIP1	
CL7-PCB-189	J	3.18	188182 SIP1	JJ - not detected at or above the reported estimated result.
CL7-PCB-190	J	16.9	188182 SIP1	
CL7-PCB-191	J	2.92	188182 SIP1	
CL7-PCB-192	UJ	0.786	188182 SIP1	J- concentration less than LMCL
CL8-PCB-194		51.2	188182 SIP1	
CL8-PCB-195	J	16.9	188182 SIP1	
CL8-PCB-196		34.1	188182 SIP1	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-197/200	J	14.6	188182 SIP1	
CL8-PCB-198/199		88.9	188182 SIP1	
CL8-PCB-201	NJ	10.6	188182 SIP1	
CL8-PCB-202	J	20.1	188182 SIP1	
CL8-PCB-203		54.7	188182 SIP1	
CL8-PCB-204	UJ	0.470	188182 SIP1	
CL8-PCB-205	J	1.97	188182 SIP1	
CL9-PCB-206		40.8	188182 SIP1	
CL9-PCB-207	J	6.31	188182 SIP1	
CL9-PCB-208	J	12.7	188182 SIP1	
CL10-PCB-209	J	18.1	188182 SIP1	
Total PCB Congeners		9,371	pg/L	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 2)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	UJ	16.7	188186 SIP2	U - not detected at or above the reported result.
CL1-PCB-2	UJ	6.05	188186 SIP2	
CL1-PCB-3	UJ	9.96	188186 SIP2	
CL2-PCB-4		43.8	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	UJ	2.59	188186 SIP2	
CL2-PCB-6		24.3	188186 SIP2	
CL2-PCB-7	UJ	5.59	188186 SIP2	J- concentration less than LMCL
CL2-PCB-8		112	188186 SIP2	
CL2-PCB-9	J	12.4	188186 SIP2	
CL2-PCB-10	UJ	2.12	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-11		725	188186 SIP2	
CL2-PCB-12/13	J	15.5	188186 SIP2	
CL2-PCB-14	U	0.784	188186 SIP2	
CL2-PCB-15		57.8	188186 SIP2	
CL3-PCB-16		69.0	188186 SIP2	
CL3-PCB-17		71.6	188186 SIP2	
CL3-PCB-18/30		151	188186 SIP2	
CL3-PCB-19	J	16.6	188186 SIP2	
CL3-PCB-20/28		230	188186 SIP2	
CL3-PCB-21/33		147	188186 SIP2	
CL3-PCB-22		88.3	188186 SIP2	
CL3-PCB-23	UJ	1.49	188186 SIP2	
CL3-PCB-24	J	4.46	188186 SIP2	
CL3-PCB-25	J	15.4	188186 SIP2	
CL3-PCB-26/29	J	45.3	188186 SIP2	
CL3-PCB-27	J	9.15	188186 SIP2	
CL3-PCB-31		253	188186 SIP2	
CL3-PCB-32		47.7	188186 SIP2	
CL3-PCB-34	UJ	0.904	188186 SIP2	
CL3-PCB-35	J	19.5	188186 SIP2	
CL3-PCB-36	UJ	1.98	188186 SIP2	
CL3-PCB-37		57.7	188186 SIP2	
CL3-PCB-38	U	0.506	188186 SIP2	
CL3-PCB-39	UJ	1.41	188186 SIP2	
CL4-PCB-40/41/71		99.8	188186 SIP2	
CL4-PCB-42		44.7	188186 SIP2	
CL4-PCB-43	J	6.63	188186 SIP2	
CL4-PCB-44/47/65		184	188186 SIP2	
CL4-PCB-45/51	J	35.0	188186 SIP2	
CL4-PCB-46	J	11.5	188186 SIP2	
CL4-PCB-48		38.5	188186 SIP2	
CL4-PCB-49/69		102	188186 SIP2	
CL4-PCB-50/53	J	22.2	188186 SIP2	
CL4-PCB-52		337	188186 SIP2	
CL4-PCB-54	UJ	0.639	188186 SIP2	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-55	J	2.68	188186 SIP2	U - not detected at or above the reported result.
CL4-PCB-56		70.1	188186 SIP2	
CL4-PCB-57	U	2.41	188186 SIP2	
CL4-PCB-58	U	2.47	188186 SIP2	
CL4-PCB-59/62/75	J	14.0	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL4-PCB-60		43.9	188186 SIP2	
CL4-PCB-61/70/74/76		319	188186 SIP2	
CL4-PCB-63	J	5.92	188186 SIP2	
CL4-PCB-64		80.6	188186 SIP2	J- concentration less than LMCL
CL4-PCB-66		145	188186 SIP2	
CL4-PCB-67	J	4.28	188186 SIP2	
CL4-PCB-68	J	2.74	188186 SIP2	
CL4-PCB-72	U	2.34	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-73	U	0.261	188186 SIP2	
CL4-PCB-77		35.9	188186 SIP2	
CL4-PCB-78	U	2.52	188186 SIP2	
CL4-PCB-79	J	10.4	188186 SIP2	
CL4-PCB-80	U	2.29	188186 SIP2	
CL4-PCB-81	U	2.58	188186 SIP2	
CL5-PCB-82		31.8	188186 SIP2	
CL5-PCB-83/99		126	188186 SIP2	
CL5-PCB-84		63.9	188186 SIP2	
CL5-PCB-85/116/117	J	39.3	188186 SIP2	
CL5-PCB-86/87/97/108/119/125		173	188186 SIP2	
CL5-PCB-88/91	J	28.2	188186 SIP2	
CL5-PCB-89	UJ	2.49	188186 SIP2	
CL5-PCB-90/101/113		238	188186 SIP2	
CL5-PCB-92		40.0	188186 SIP2	
CL5-PCB-93/95/98/100/102		177	188186 SIP2	
CL5-PCB-94	U	1.80	188186 SIP2	
CL5-PCB-96	UJ	1.72	188186 SIP2	
CL5-PCB-103	U	1.51	188186 SIP2	
CL5-PCB-104	U	0.962	188186 SIP2	
CL5-PCB-105		99.5	188186 SIP2	
CL5-PCB-106	U	1.92	188186 SIP2	
CL5-PCB-107/124	J	8.56	188186 SIP2	
CL5-PCB-109	J	14.2	188186 SIP2	
CL5-PCB-110/115		283	188186 SIP2	
CL5-PCB-111	U	1.25	188186 SIP2	
CL5-PCB-112	U	1.25	188186 SIP2	
CL5-PCB-114	J	6.13	188186 SIP2	
CL5-PCB-118		229	188186 SIP2	
CL5-PCB-120	U	1.22	188186 SIP2	
CL5-PCB-121	U	1.26	188186 SIP2	
CL5-PCB-122	U	2.31	188186 SIP2	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-123	J	9.36	188186 SIP2	U - not detected at or above the reported result.
CL5-PCB-126	U	2.35	188186 SIP2	
CL5-PCB-127	U	2.04	188186 SIP2	
CL6-PCB-128/166	J	40.9	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-129/138/160/163		258	188186 SIP2	
CL6-PCB-130	J	16.4	188186 SIP2	
CL6-PCB-131	J	3.44	188186 SIP2	
CL6-PCB-132		81.6	188186 SIP2	
CL6-PCB-133	J	3.18	188186 SIP2	
CL6-PCB-134/143	J	11.2	188186 SIP2	J- concentration less than LMCL
CL6-PCB-135/151/154	J	68.6	188186 SIP2	
CL6-PCB-136		26.1	188186 SIP2	
CL6-PCB-137	J	15.1	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-139/140	J	3.87	188186 SIP2	
CL6-PCB-141		42.3	188186 SIP2	
CL6-PCB-142	U	2.29	188186 SIP2	
CL6-PCB-144	J	10.1	188186 SIP2	
CL6-PCB-145	U	0.213	188186 SIP2	
CL6-PCB-146		30.1	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-147/149		169	188186 SIP2	
CL6-PCB-148	U	0.286	188186 SIP2	
CL6-PCB-150	UJ	0.217	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-152	UJ	0.323	188186 SIP2	
CL6-PCB-153/168		208	188186 SIP2	
CL6-PCB-155	U	0.198	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-156/157	J	35.4	188186 SIP2	
CL6-PCB-158		27.8	188186 SIP2	
CL6-PCB-159	NJ	2.50	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-161	U	1.57	188186 SIP2	
CL6-PCB-162	U	1.52	188186 SIP2	
CL6-PCB-164	J	14.7	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL6-PCB-165	U	1.69	188186 SIP2	
CL6-PCB-167	J	9.29	188186 SIP2	
CL6-PCB-169	U	1.61	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL7-PCB-170		42.5	188186 SIP2	
CL7-PCB-171/173	J	14.7	188186 SIP2	
CL7-PCB-172	J	9.45	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL7-PCB-174		48.5	188186 SIP2	
CL7-PCB-175	UJ	2.24	188186 SIP2	
CL7-PCB-176	J	7.88	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL7-PCB-177		28.5	188186 SIP2	
CL7-PCB-178	J	11.6	188186 SIP2	
CL7-PCB-179		24.4	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL7-PCB-180/193		115	188186 SIP2	
CL7-PCB-181	UJ	0.915	188186 SIP2	
CL7-PCB-182	U	0.358	188186 SIP2	

Appendix B - Results of Low-level Congener Analyses

Spokane Industrial Park (SIP) wastewater (sample 2, cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-183/185	J	42.2	188186 SIP2	U - not detected at or above the reported result.
CL7-PCB-184	U	0.269	188186 SIP2	
CL7-PCB-186	U	0.290	188186 SIP2	
CL7-PCB-187		74.2	188186 SIP2	UJ - not detected at or above the reported estimated result.
CL7-PCB-188	U	0.244	188186 SIP2	
CL7-PCB-189	NJ	1.34	188186 SIP2	J- concentration less than LMCL
CL7-PCB-190	J	9.05	188186 SIP2	
CL7-PCB-191	J	2.18	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL7-PCB-192	U	0.299	188186 SIP2	
CL8-PCB-194		26.0	188186 SIP2	
CL8-PCB-195	J	9.15	188186 SIP2	J- concentration less than LMCL
CL8-PCB-196	J	18.7	188186 SIP2	
CL8-PCB-197/200	J	7.09	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-198/199	J	46.1	188186 SIP2	
CL8-PCB-201	J	5.40	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-202	J	11.6	188186 SIP2	
CL8-PCB-203		30.0	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-204	U	0.215	188186 SIP2	
CL8-PCB-205	NJ	1.72	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL9-PCB-206	J	19.5	188186 SIP2	
CL9-PCB-207	UJ	3.32	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
CL9-PCB-208	J	7.71	188186 SIP2	
CL10-PCB-209	J	17.0	188186 SIP2	NJ- peak detected, but did not meet quantification criteria.
Total PCB Congeners		7,108	pg/L	

Appendix B - Results of Low-level Congener Analyses

Lab Blank

congener/congener group	qualifier	result (pg/L)	sampling station	
CL1-PCB-1	J	6.90	LAB BLANK	U - not detected at or above the reported result.
CL1-PCB-2	U	1.87	LAB BLANK	
CL1-PCB-3	J	2.58	LAB BLANK	
CL2-PCB-4	J	5.61	LAB BLANK	UJ - not detected at or above the reported estimated result.
CL2-PCB-5	U	1.34	LAB BLANK	
CL2-PCB-6	J	1.97	LAB BLANK	
CL2-PCB-7	U	1.24	LAB BLANK	
CL2-PCB-8	J	6.88	LAB BLANK	
CL2-PCB-9	U	1.22	LAB BLANK	
CL2-PCB-10	U	1.25	LAB BLANK	J- concentration less than LMCL
CL2-PCB-11		25.4	LAB BLANK	
CL2-PCB-12/13	U	1.34	LAB BLANK	
CL2-PCB-14	U	1.30	LAB BLANK	NJ- peak detected, but did not meet quantification criteria.
CL2-PCB-15	J	2.58	LAB BLANK	
CL3-PCB-16	J	1.96	LAB BLANK	
CL3-PCB-17	J	2.41	LAB BLANK	
CL3-PCB-18/30	J	5.42	LAB BLANK	
CL3-PCB-19	J	1.56	LAB BLANK	
CL3-PCB-20/28	J	6.19	LAB BLANK	
CL3-PCB-21/33	J	3.44	LAB BLANK	
CL3-PCB-22	NJ	2.04	LAB BLANK	
CL3-PCB-23	U	0.579	LAB BLANK	
CL3-PCB-24	U	0.353	LAB BLANK	
CL3-PCB-25	NJ	0.582	LAB BLANK	
CL3-PCB-26/29	J	0.959	LAB BLANK	
CL3-PCB-27	U	0.344	LAB BLANK	
CL3-PCB-31	J	5.02	LAB BLANK	
CL3-PCB-32	J	1.69	LAB BLANK	
CL3-PCB-34	U	0.596	LAB BLANK	
CL3-PCB-35	U	0.584	LAB BLANK	
CL3-PCB-36	U	0.553	LAB BLANK	
CL3-PCB-37	NJ	0.860	LAB BLANK	
CL3-PCB-38	U	0.590	LAB BLANK	
CL3-PCB-39	U	0.543	LAB BLANK	
CL4-PCB-40/41/71	NJ	1.30	LAB BLANK	
CL4-PCB-42	J	0.676	LAB BLANK	
CL4-PCB-43	U	0.543	LAB BLANK	
CL4-PCB-44/47/65	J	4.02	LAB BLANK	
CL4-PCB-45/51	U	0.481	LAB BLANK	
CL4-PCB-46	U	0.573	LAB BLANK	
CL4-PCB-48	J	0.690	LAB BLANK	
CL4-PCB-49/69	J	1.57	LAB BLANK	
CL4-PCB-50/53	J	0.535	LAB BLANK	
CL4-PCB-52	J	3.51	LAB BLANK	
CL4-PCB-54	U	0.421	LAB BLANK	
CL4-PCB-55	U	0.302	LAB BLANK	

Appendix B - Results of Low-level Congener Analyses

Lab Blank (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56	NJ	0.737	LAB BLANK	U - not detected at or above the reported result.
CL4-PCB-57	U	0.299	LAB BLANK	
CL4-PCB-58	U	0.302	LAB BLANK	
CL4-PCB-59/62/75	U	0.361	LAB BLANK	
CL4-PCB-60	U	0.301	LAB BLANK	UJ - not detected at or above the reported estimated result.
CL4-PCB-61/70/74/76	NJ	3.05	LAB BLANK	
CL4-PCB-63	U	0.291	LAB BLANK	
CL4-PCB-64	NJ	1.44	LAB BLANK	
CL4-PCB-66	J	1.40	LAB BLANK	J- concentration less than LMCL
CL4-PCB-67	U	0.260	LAB BLANK	
CL4-PCB-68	U	0.279	LAB BLANK	
CL4-PCB-72	U	0.286	LAB BLANK	
CL4-PCB-73	U	0.359	LAB BLANK	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-77	NJ	0.537	LAB BLANK	
CL4-PCB-78	U	0.303	LAB BLANK	
CL4-PCB-79	U	0.252	LAB BLANK	
CL4-PCB-80	U	0.284	LAB BLANK	
CL4-PCB-81	U	0.298	LAB BLANK	
CL5-PCB-82	U	0.649	LAB BLANK	
CL5-PCB-83/99	J	1.38	LAB BLANK	
CL5-PCB-84	U	0.695	LAB BLANK	
CL5-PCB-85/116/117	J	0.576	LAB BLANK	
CL5-PCB-86/87/97/108/119/125	J	1.56	LAB BLANK	
CL5-PCB-88/91	U	0.603	LAB BLANK	
CL5-PCB-89	U	0.647	LAB BLANK	
CL5-PCB-90/101/113	J	2.87	LAB BLANK	
CL5-PCB-92	U	0.620	LAB BLANK	
CL5-PCB-93/95/98/100/102	U	0.587	LAB BLANK	
CL5-PCB-94	U	0.637	LAB BLANK	
CL5-PCB-96	U	0.423	LAB BLANK	
CL5-PCB-103	U	0.529	LAB BLANK	
CL5-PCB-104	U	0.452	LAB BLANK	
CL5-PCB-105	U	0.876	LAB BLANK	
CL5-PCB-106	U	0.751	LAB BLANK	
CL5-PCB-107/124	U	0.843	LAB BLANK	
CL5-PCB-109	U	0.854	LAB BLANK	
CL5-PCB-110/115	J	2.53	LAB BLANK	
CL5-PCB-111	U	0.421	LAB BLANK	
CL5-PCB-112	U	0.403	LAB BLANK	
CL5-PCB-114	U	0.856	LAB BLANK	
CL5-PCB-118	J	2.39	LAB BLANK	
CL5-PCB-120	U	0.406	LAB BLANK	
CL5-PCB-121	U	0.442	LAB BLANK	
CL5-PCB-122	U	0.914	LAB BLANK	
CL5-PCB-123	U	0.884	LAB BLANK	
CL5-PCB-126	U	0.942	LAB BLANK	

Appendix B - Results of Low-level Congener Analyses

Lab Blank (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	0.870	LAB BLANK	U - not detected at or above the reported result.
CL6-PCB-128/166	NJ	0.440	LAB BLANK	
CL6-PCB-129/138/160/163	J	2.79	LAB BLANK	
CL6-PCB-130	U	0.552	LAB BLANK	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	U	0.516	LAB BLANK	
CL6-PCB-132	J	1.10	LAB BLANK	
CL6-PCB-133	U	0.476	LAB BLANK	J- concentration less than LMCL
CL6-PCB-134/143	U	0.491	LAB BLANK	
CL6-PCB-135/151/154	U	0.317	LAB BLANK	
CL6-PCB-136	NJ	0.377	LAB BLANK	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	U	0.500	LAB BLANK	
CL6-PCB-139/140	U	0.443	LAB BLANK	
CL6-PCB-141	U	0.469	LAB BLANK	
CL6-PCB-142	U	0.481	LAB BLANK	
CL6-PCB-144	U	0.331	LAB BLANK	
CL6-PCB-145	U	0.259	LAB BLANK	
CL6-PCB-146	U	0.459	LAB BLANK	
CL6-PCB-147/149	J	2.11	LAB BLANK	
CL6-PCB-148	U	0.340	LAB BLANK	
CL6-PCB-150	U	0.249	LAB BLANK	
CL6-PCB-152	U	0.248	LAB BLANK	
CL6-PCB-153/168	J	2.77	LAB BLANK	
CL6-PCB-155	U	0.269	LAB BLANK	
CL6-PCB-156/157	NJ	0.385	LAB BLANK	
CL6-PCB-158	U	0.331	LAB BLANK	
CL6-PCB-159	U	0.340	LAB BLANK	
CL6-PCB-161	U	0.325	LAB BLANK	
CL6-PCB-162	U	0.334	LAB BLANK	
CL6-PCB-164	U	0.355	LAB BLANK	
CL6-PCB-165	U	0.384	LAB BLANK	
CL6-PCB-167	U	0.326	LAB BLANK	
CL6-PCB-169	U	0.341	LAB BLANK	
CL7-PCB-170	U	0.531	LAB BLANK	
CL7-PCB-171/173	U	0.553	LAB BLANK	
CL7-PCB-172	U	0.548	LAB BLANK	
CL7-PCB-174	NJ	0.676	LAB BLANK	
CL7-PCB-175	U	0.510	LAB BLANK	
CL7-PCB-176	U	0.394	LAB BLANK	
CL7-PCB-177	U	0.549	LAB BLANK	
CL7-PCB-178	U	0.527	LAB BLANK	
CL7-PCB-179	U	0.393	LAB BLANK	
CL7-PCB-180/193	U	0.431	LAB BLANK	
CL7-PCB-181	U	0.506	LAB BLANK	
CL7-PCB-182	U	0.509	LAB BLANK	
CL7-PCB-183/185	U	0.500	LAB BLANK	
CL7-PCB-184	U	0.374	LAB BLANK	

Appendix B - Results of Low-level Congener Analyses

Lab Blank (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.404	LAB BLANK	U - not detected at or above the reported result.
CL7-PCB-187	J	0.606	LAB BLANK	
CL7-PCB-188	U	0.383	LAB BLANK	
CL7-PCB-189	U	0.225	LAB BLANK	
CL7-PCB-190	U	0.377	LAB BLANK	UJ - not detected at or above the reported estimated result.
CL7-PCB-191	U	0.390	LAB BLANK	
CL7-PCB-192	U	0.415	LAB BLANK	
CL8-PCB-194	J	0.210	LAB BLANK	
CL8-PCB-195	U	0.210	LAB BLANK	J- concentration less than LMCL
CL8-PCB-196	U	0.318	LAB BLANK	
CL8-PCB-197/200	U	0.249	LAB BLANK	
CL8-PCB-198/199	NJ	0.399	LAB BLANK	
CL8-PCB-201	U	0.256	LAB BLANK	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-202	U	0.244	LAB BLANK	
CL8-PCB-203	U	0.284	LAB BLANK	
CL8-PCB-204	NJ	0.425	LAB BLANK	
CL8-PCB-205	U	0.198	LAB BLANK	
CL9-PCB-206	U	1.06	LAB BLANK	
CL9-PCB-207	U	0.892	LAB BLANK	
CL9-PCB-208	U	0.964	LAB BLANK	
CL10-PCB-209	NJ	1.01	LAB BLANK	
Total PCB Congeners		128 pg/L		

Appendix B - Results of Low-level Congener Analyses

Transfer Blank

congener/congener group	qualifier	result (pg/L)	sampling station
CL1-PCB-1	UJ	3.43	188191 TRNSFBLK
CL1-PCB-2	U	1.47	188191 TRNSFBLK
CL1-PCB-3	U	1.77	188191 TRNSFBLK
CL2-PCB-4	UJ	4.39	188191 TRNSFBLK
CL2-PCB-5	U	1.33	188191 TRNSFBLK
CL2-PCB-6	UJ	2.12	188191 TRNSFBLK
CL2-PCB-7	U	1.19	188191 TRNSFBLK
CL2-PCB-8	UJ	7.14	188191 TRNSFBLK
CL2-PCB-9	U	1.19	188191 TRNSFBLK
CL2-PCB-10	U	1.21	188191 TRNSFBLK
CL2-PCB-11	UJ	26.9	188191 TRNSFBLK
CL2-PCB-12/13	U	1.29	188191 TRNSFBLK
CL2-PCB-14	U	1.25	188191 TRNSFBLK
CL2-PCB-15	UJ	2.25	188191 TRNSFBLK
CL3-PCB-16	UJ	2.48	188191 TRNSFBLK
CL3-PCB-17	UJ	3.16	188191 TRNSFBLK
CL3-PCB-18/30	UJ	5.67	188191 TRNSFBLK
CL3-PCB-19	UJ	0.820	188191 TRNSFBLK
CL3-PCB-20/28	UJ	7.57	188191 TRNSFBLK
CL3-PCB-21/33	UJ	4.48	188191 TRNSFBLK
CL3-PCB-22	UJ	2.60	188191 TRNSFBLK
CL3-PCB-23	U	0.605	188191 TRNSFBLK
CL3-PCB-24	U	0.533	188191 TRNSFBLK
CL3-PCB-25	U	0.537	188191 TRNSFBLK
CL3-PCB-26/29	UJ	1.06	188191 TRNSFBLK
CL3-PCB-27	U	0.520	188191 TRNSFBLK
CL3-PCB-31	UJ	6.30	188191 TRNSFBLK
CL3-PCB-32	UJ	1.76	188191 TRNSFBLK
CL3-PCB-34	U	0.614	188191 TRNSFBLK
CL3-PCB-35	U	0.609	188191 TRNSFBLK
CL3-PCB-36	U	0.567	188191 TRNSFBLK
CL3-PCB-37	UJ	1.16	188191 TRNSFBLK
CL3-PCB-38	U	0.605	188191 TRNSFBLK
CL3-PCB-39	U	0.575	188191 TRNSFBLK
CL4-PCB-40/41/71	UJ	1.86	188191 TRNSFBLK
CL4-PCB-42	UJ	0.665	188191 TRNSFBLK
CL4-PCB-43	U	0.623	188191 TRNSFBLK
CL4-PCB-44/47/65	UJ	5.14	188191 TRNSFBLK
CL4-PCB-45/51	UJ	1.64	188191 TRNSFBLK
CL4-PCB-46	U	0.629	188191 TRNSFBLK
CL4-PCB-48	UJ	0.958	188191 TRNSFBLK
CL4-PCB-49/69	UJ	1.83	188191 TRNSFBLK
CL4-PCB-50/53	U	0.502	188191 TRNSFBLK
CL4-PCB-52	UJ	3.74	188191 TRNSFBLK
CL4-PCB-54	U	0.442	188191 TRNSFBLK
CL4-PCB-55	U	0.344	188191 TRNSFBLK

U - not detected at or above the reported result.

UJ - not detected at or above the reported estimated result.

J- concentration less than LMCL

NJ- peak detected, but did not meet quantification criteria.

Appendix B - Results of Low-level Congener Analyses

Transfer Blank (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL4-PCB-56	UJ	0.794	188191 TRNSFBLK	U - not detected at or above the reported result.
CL4-PCB-57	U	0.340	188191 TRNSFBLK	
CL4-PCB-58	U	0.348	188191 TRNSFBLK	
CL4-PCB-59/62/75	U	0.401	188191 TRNSFBLK	UJ - not detected at or above the reported estimated result.
CL4-PCB-60	UJ	0.969	188191 TRNSFBLK	
CL4-PCB-61/70/74/76	UJ	3.98	188191 TRNSFBLK	
CL4-PCB-63	U	0.331	188191 TRNSFBLK	
CL4-PCB-64	UJ	1.35	188191 TRNSFBLK	
CL4-PCB-66	UJ	1.84	188191 TRNSFBLK	
CL4-PCB-67	U	0.297	188191 TRNSFBLK	J- concentration less than LMCL
CL4-PCB-68	UJ	0.682	188191 TRNSFBLK	
CL4-PCB-72	U	0.330	188191 TRNSFBLK	
CL4-PCB-73	U	0.396	188191 TRNSFBLK	NJ- peak detected, but did not meet quantification criteria.
CL4-PCB-77	U	0.364	188191 TRNSFBLK	
CL4-PCB-78	U	0.356	188191 TRNSFBLK	
CL4-PCB-79	U	0.296	188191 TRNSFBLK	
CL4-PCB-80	U	0.323	188191 TRNSFBLK	
CL4-PCB-81	U	0.355	188191 TRNSFBLK	
CL5-PCB-82	U	1.17	188191 TRNSFBLK	
CL5-PCB-83/99	UJ	1.96	188191 TRNSFBLK	
CL5-PCB-84	U	1.16	188191 TRNSFBLK	
CL5-PCB-85/116/117	U	0.861	188191 TRNSFBLK	
CL5-PCB-86/87/97/108/119/125	UJ	2.54	188191 TRNSFBLK	
CL5-PCB-88/91	U	1.01	188191 TRNSFBLK	
CL5-PCB-89	U	1.11	188191 TRNSFBLK	
CL5-PCB-90/101/113	UJ	2.56	188191 TRNSFBLK	
CL5-PCB-92	U	1.04	188191 TRNSFBLK	
CL5-PCB-93/95/98/100/102	UJ	2.08	188191 TRNSFBLK	
CL5-PCB-94	U	1.08	188191 TRNSFBLK	
CL5-PCB-96	U	0.772	188191 TRNSFBLK	
CL5-PCB-103	U	0.906	188191 TRNSFBLK	
CL5-PCB-104	U	0.993	188191 TRNSFBLK	
CL5-PCB-105	UJ	1.43	188191 TRNSFBLK	
CL5-PCB-106	U	0.700	188191 TRNSFBLK	
CL5-PCB-107/124	U	0.758	188191 TRNSFBLK	
CL5-PCB-109	U	0.711	188191 TRNSFBLK	
CL5-PCB-110/115	UJ	2.44	188191 TRNSFBLK	
CL5-PCB-111	U	0.749	188191 TRNSFBLK	
CL5-PCB-112	U	0.747	188191 TRNSFBLK	
CL5-PCB-114	U	0.711	188191 TRNSFBLK	
CL5-PCB-118	UJ	3.68	188191 TRNSFBLK	
CL5-PCB-120	U	0.729	188191 TRNSFBLK	
CL5-PCB-121	U	0.754	188191 TRNSFBLK	
CL5-PCB-122	U	0.844	188191 TRNSFBLK	
CL5-PCB-123	U	0.730	188191 TRNSFBLK	
CL5-PCB-126	U	0.822	188191 TRNSFBLK	

Appendix B - Results of Low-level Congener Analyses

Transfer Blank (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL5-PCB-127	U	0.744	188191 TRNSFBLK	U - not detected at or above the reported result.
CL6-PCB-128/166	UJ	0.740	188191 TRNSFBLK	
CL6-PCB-129/138/160/163	UJ	3.73	188191 TRNSFBLK	
CL6-PCB-130	U	0.575	188191 TRNSFBLK	UJ - not detected at or above the reported estimated result.
CL6-PCB-131	U	0.559	188191 TRNSFBLK	
CL6-PCB-132	U	0.556	188191 TRNSFBLK	
CL6-PCB-133	U	0.539	188191 TRNSFBLK	J- concentration less than LMCL
CL6-PCB-134/143	U	0.547	188191 TRNSFBLK	
CL6-PCB-135/151/154	UJ	0.570	188191 TRNSFBLK	
CL6-PCB-136	UJ	0.347	188191 TRNSFBLK	NJ- peak detected, but did not meet quantification criteria.
CL6-PCB-137	U	0.555	188191 TRNSFBLK	
CL6-PCB-139/140	U	0.481	188191 TRNSFBLK	
CL6-PCB-141	U	0.501	188191 TRNSFBLK	
CL6-PCB-142	U	0.554	188191 TRNSFBLK	
CL6-PCB-144	U	0.424	188191 TRNSFBLK	
CL6-PCB-145	U	0.321	188191 TRNSFBLK	
CL6-PCB-146	UJ	1.12	188191 TRNSFBLK	
CL6-PCB-147/149	UJ	2.24	188191 TRNSFBLK	
CL6-PCB-148	U	0.430	188191 TRNSFBLK	
CL6-PCB-150	U	0.301	188191 TRNSFBLK	
CL6-PCB-152	U	0.300	188191 TRNSFBLK	
CL6-PCB-153/168	UJ	8.31	188191 TRNSFBLK	
CL6-PCB-155	U	0.365	188191 TRNSFBLK	
CL6-PCB-156/157	UJ	0.487	188191 TRNSFBLK	
CL6-PCB-158	UJ	0.408	188191 TRNSFBLK	
CL6-PCB-159	U	0.381	188191 TRNSFBLK	
CL6-PCB-161	U	0.380	188191 TRNSFBLK	
CL6-PCB-162	U	0.368	188191 TRNSFBLK	
CL6-PCB-164	U	0.353	188191 TRNSFBLK	
CL6-PCB-165	U	0.410	188191 TRNSFBLK	
CL6-PCB-167	U	0.345	188191 TRNSFBLK	
CL6-PCB-169	U	0.342	188191 TRNSFBLK	
CL7-PCB-170	UJ	0.579	188191 TRNSFBLK	
CL7-PCB-171/173	U	0.396	188191 TRNSFBLK	
CL7-PCB-172	U	0.399	188191 TRNSFBLK	
CL7-PCB-174	UJ	0.372	188191 TRNSFBLK	
CL7-PCB-175	U	0.363	188191 TRNSFBLK	
CL7-PCB-176	U	0.283	188191 TRNSFBLK	
CL7-PCB-177	U	0.387	188191 TRNSFBLK	
CL7-PCB-178	U	0.383	188191 TRNSFBLK	
CL7-PCB-179	UJ	0.536	188191 TRNSFBLK	
CL7-PCB-180/193	J	2.65	188191 TRNSFBLK	
CL7-PCB-181	U	0.360	188191 TRNSFBLK	
CL7-PCB-182	U	0.355	188191 TRNSFBLK	
CL7-PCB-183/185	U	0.360	188191 TRNSFBLK	
CL7-PCB-184	U	0.267	188191 TRNSFBLK	

Appendix B - Results of Low-level Congener Analyses

Transfer Blank (cont'd.)

congener/congener group	qualifier	result (pg/L)	sampling station	
CL7-PCB-186	U	0.287	188191 TRNSFBLK	U - not detected at or above the reported result.
CL7-PCB-187	UJ	1.49	188191 TRNSFBLK	
CL7-PCB-188	U	0.292	188191 TRNSFBLK	UJ - not detected at or above the reported estimated result.
CL7-PCB-189	U	0.828	188191 TRNSFBLK	
CL7-PCB-190	U	0.276	188191 TRNSFBLK	J- concentration less than LMCL
CL7-PCB-191	U	0.283	188191 TRNSFBLK	
CL7-PCB-192	U	0.296	188191 TRNSFBLK	NJ- peak detected, but did not meet quantification criteria.
CL8-PCB-194	U	1.01	188191 TRNSFBLK	
CL8-PCB-195	U	1.11	188191 TRNSFBLK	
CL8-PCB-196	U	0.357	188191 TRNSFBLK	
CL8-PCB-197/200	U	0.273	188191 TRNSFBLK	
CL8-PCB-198/199	UJ	0.433	188191 TRNSFBLK	
CL8-PCB-201	U	0.282	188191 TRNSFBLK	
CL8-PCB-202	U	0.304	188191 TRNSFBLK	
CL8-PCB-203	UJ	0.795	188191 TRNSFBLK	
CL8-PCB-204	U	0.282	188191 TRNSFBLK	
CL8-PCB-205	U	0.873	188191 TRNSFBLK	
CL9-PCB-206	U	1.90	188191 TRNSFBLK	
CL9-PCB-207	U	1.57	188191 TRNSFBLK	
CL9-PCB-208	U	1.62	188191 TRNSFBLK	
CL10-PCB-209	UJ	1.50	188191 TRNSFBLK	
Total PCB Congeners		2.65 pg/L		

Appendix C.

Aroclor-equivalent Estimates Based on Congener
Proportions AXYS Laboratories Method
Applied by Manchester Environmental Laboratory

**Appendix C - Aroclor-equivalent Estimates Based on Congener Proportions -
AXYS Method Applied by Manchester Environmental Laboratory**

Congener	8	18	28	31	PCB - 1242
% in Aroclor	~7%	~8.5%	~7%	~7.5%	
SAMPLE	(pg/L)	(pg/L)	(pg/L)	(pg/L)	
Kaiser 1 188183	107	657	862	682	8770 NJ
Kaiser 2 188187	55.3	435	556	426	5595 NJ
SpokWWTP1 188180	10 UJ	78	93	90	1032 NJ
SpokWWTP2 188185	35	74.8	74	74	977 NJ
Inland 188181	14	82.1	104	95	1119 NJ
Liblake1 188184	14 UJ	51.3	73	65	775 NJ
Liblake 2 188188	8.2 UJ	39 J	58	51	596 NJ
SIP 1 188182	115	159	241	280	3021 NJ
SIP 2 188185	112	151	230	253	2835 NJ
trnsflk 188191	7.1 UJ	5.7 UJ	7.6 UJ	6.3 UJ	101 UJ

{SUM(8,18,28,31)*3.8}

bold - estimated detected value

U - The analyte was not detected at or above the reported result.

UJ - The analyte was not detected at or above the reported estimated value.

J - The analyte was positively identified. The associated numerical result is an estimate.

NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.

Appendix C - (cont'd)

Congener	99	87/97	PCB - 1254
% in Aroclor	~4%	~3.5%	
SAMPLE	(pg/L)	(pg/L)	
Kaiser 1 188183	126	126	2520 NJ
Kaiser 2 188187	33 J	38 J	704 NJ
SpokWWTP1 188180	39 J	50 J	888 NJ
SpokWWTP2 188185	38 J	54 J	920 NJ
Inland 188181	40 J	48 J	875 NJ
Liblake1 188184	53	63	1164 NJ
Liblake 2 188188	45 J	53 J	975 NJ
SIP 1 188182	221	274	4950 NJ
SIP 2 188185	126	173	2990 NJ
trnsblk 188191	1.96 UJ	2.54 UJ	45 UJ

{SUM(99,87/97)*10}

bold - estimated detected value

U - The analyte was not detected at or above the reported result.

UJ - The analyte was not detected at or above the reported estimated value.

J - The analyte was positively identified. The associated numerical result is an estimate.

NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.

Appendix C - (cont'd)

Congener	183	180	170	PCB - 1260
% in Aroclor	~2.4%	~11%	~4%	
SAMPLE	(pg/L)	(pg/L)	(pg/L)	
Kaiser 1 188183	7.7 J	36 J	11 J	392 NJ
Kaiser 2 188187	1.7 UJ	6.15 NJ	2.4 UJ	29 NJ
SpokWWTP1 188180	0.5U	20 J	8.0 J	201 NJ
SpokWWTP2 188185	9.0 J	28 J	10 J	335 NJ
Inland 188181	3.5 NJ	9.8 J	4.6	102 NJ
Liblake1 188184	11 J	41 J	14 J	469 NJ
Liblake 2 188188	9.3 J	34 J	12 J	393.4 NJ
SIP 1 188182	76.2	215	77.7	2619 NJ
SIP 2 188185	42 J	115	42.5	1418 NJ
trnsfblk 188191	0.4 U	2.65 J	0.58 UJ	19 J

{SUM(183,180,170)*7.1}

bold - estimated detected value

U - The analyte was not detected at or above the reported result.

UJ - The analyte was not detected at or above the reported estimated value.

J - The analyte was positively identified. The associated numerical result is an estimate.

NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.

Appendix C - (cont'd)

Congener	44	52	56	PCB - 1248*
% in Aroclor	~6%	~6%	~3%	
SAMPLE	(pg/L)	(pg/L)	(pg/L)	
Kaiser 1 188183	565	537	233	8811 NJ
Kaiser 2 188187	276	286	89	4298 NJ
SpokWWTP1 188180	70 J	108	18 J	1294 NJ
SpokWWTP2 188185	57 J	85	15	1040 NJ
Inland 188181	120	135	52	2025 NJ
Liblake1 188184	67 J	94	20 J	1201 NJ
Liblake 2 188188	46 J	71	15	871 NJ
SIP 1 188182	237	420	84	4890 NJ
SIP 2 188185	184	337	70	3901 NJ
trnsfblk 188191	5.14 UJ	3.74 UJ	0.794 UJ	64 UJ

{SUM(44,52,56)*6.6}

* - PCB-1248 estimated with AXYS method but not comparable to other Aroclor-equivalent estimates.

bold - estimated detected value

U - The analyte was not detected at or above the reported result.

UJ - The analyte was not detected at or above the reported estimated value.

J - The analyte was positively identified. The associated numerical result is an estimate.

NJ - There is evidence that the analyte is present. The associated numerical result is an estimate.