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Polychlorinated biphenyls in Cedar Rapids soil

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POLYCHLORINATED BIPHENYLS IN CEDAR RAPIDS SOIL

by

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A thesis submitted in partial fulfillment
of the requirements for the Master of
Science degree in Civil and Environmental Engineering
in the Graduate College of
The University of Iowa

May 2010

Thesis Supervisor: Professor Keri Hornbuckle

Graduate College
The University of Iowa
Iowa City, Iowa

CERTIFICATE OF APPROVAL

MASTER'S THESIS

This is to certify that the Master's thesis of

Paul Michael Eastling

has been approved by the Examining Committee
for the thesis requirement for the Master of Science
degree in Civil and Environmental Engineering at the
May 2010 graduation

Thesis Committee ___________________________________
Keri C. Hornbuckle Thesis Supervisor

____
Timothy E. Mattes

____
Craig L. Just

To my Mom and Dad,

I love you

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CHAPTER 1
INTRODUCTION

In June of 2008 the Cedar River water levels rose above the banks creating flooding and devastation to the city of Cedar Rapids. A series of rain events timed to compound an increasing storm surge brought a peak flow of 140,000 cubic feet per second into Cedar Rapids. The storm surge covered 1,300 city blocks and displaced 24,000 people from their homes (Schulte, 2009). Weeks later the flood waters subsided, depositing the carried sediment to the flooded areas of the city. The flood waters caused damage exceeding $2 billion in value.

Figure 1-1. Cedar River flooding Cedar Rapids in June of 2008. View of downtown Cedar Rapids.

The flooding created a conduit for the transportation of toxic chemicals from upstream locations to Cedar Rapids. The flood waters potentially transported the polychlorinated biphenyl (PCB) contaminated Cedar Lake sediment across the river into the residential area of Cedar Rapids. We hypothesize that PCBs were transported by the flood and significant concentrations are in the Cedar Rapids soil, and that the congener profile is different than soil outside of the flooded area.

Polychlorinated biphenyls are a class of chemicals with two benzene rings with one to ten chlorine molecules attached to the possible positions. Each combination of chlorine number and location denotes the different PCB congeners. There are 209 PCB congeners. PCBs were manufactured under the chemical name Aroclor. Each Aroclor has a different combination of PCB congeners. Studies PCBs showed exposure symptoms including acute systemic poisoning. In 1973, the United States banned the use of open sources of PCBs, and in 1979, the commercial production of PCBs was outlawed(40 CFR part 761). PCBs are a very stable molecule and are persistent in the environment. Since there are areas of industry in Cedar Rapids, PCBs were used in clean up of machine parts and lubrication. PCBs from these industrial sources may have contaminated the Cedar Rapids soil prior to the 2008 flooding.

Previous studies of surficial soils in the Seine River Basin, France, show PCB concentrations ranging from 0.09 to 150 μg kg^{-1} for sites along the basin, and 1.49 μg kg^{-1} for samples in an urban city of Rouen (A. Motelay-Masse, 2004).

CHAPTER 2
FIELD SAMPLING MATERIALS AND METHODS

2.1 Sampling Location and Procedures

2.1.1 Site Location and Logistics

The collection of samples took place in the City of Cedar Rapids on August 25th, 2008. The sampling was completed by 15 volunteers from the community and University of Iowa. Figure 2-1 shows two students collecting samples. The volunteers were organized into groups of three and sent out to gather soil samples throughout the residential areas of Cedar Rapids. Each of the samples was gathered from the public right-of-way of residents' lawns and the latitude and longitude was recorded for mapping purposes. A map of all the samples taken is shown in Figure 2-2 below.

Figure 2-1. U of I engineering students collect soil samples from a downtown Cedar Rapids neighborhood (Photo: Schoon).

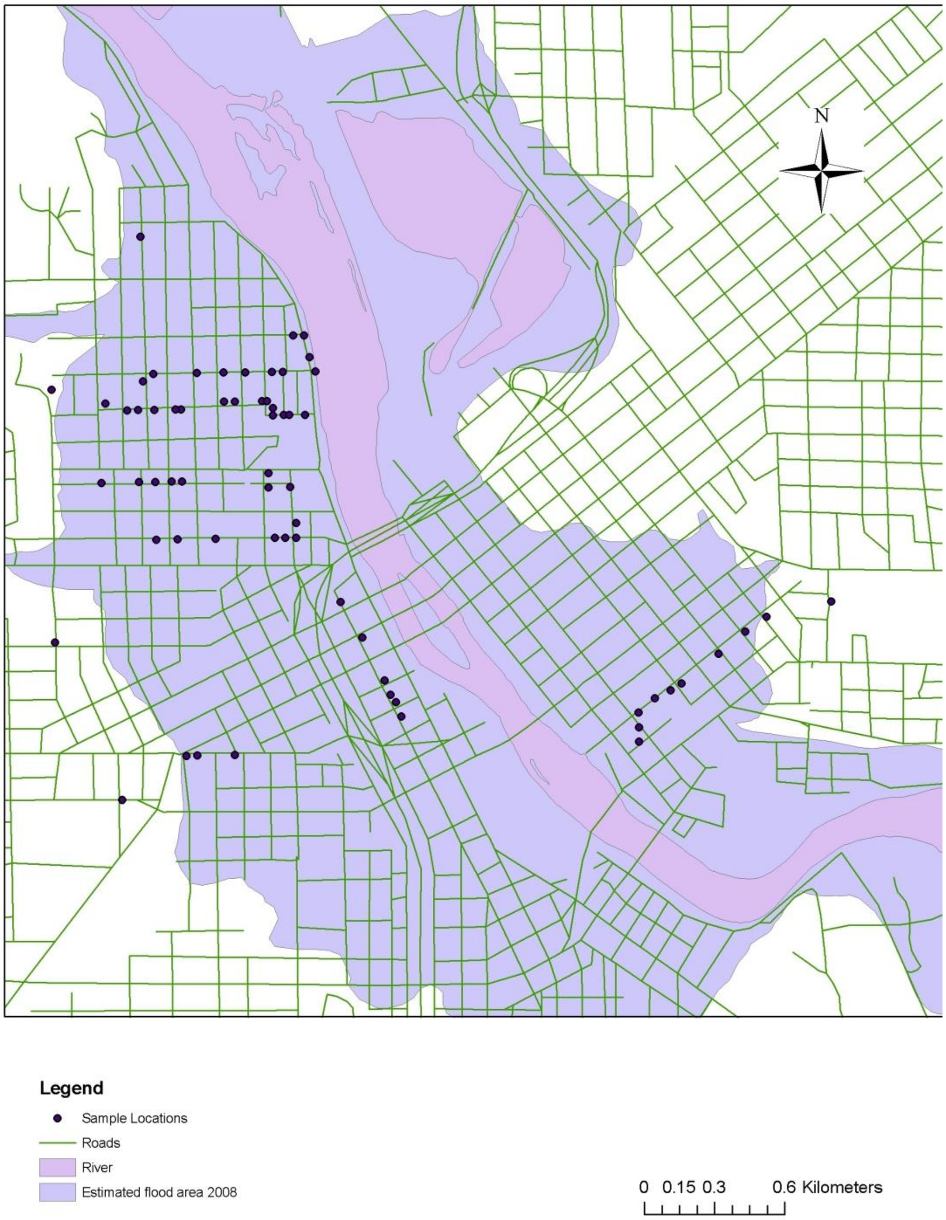


Figure 2-2. Locations of analyzed samples gathered in Cedar Rapids on August 25, 2008

2.2 **Soil Collection**

The residential area of Cedar Rapids that was flooded already had signs of recovery. The residential lawns had new grass but many areas of the grass had construction debris from the reconstruction efforts. The volunteers were instructed to find a location with minimal extra debris and dig 4-5 inches into the soil with a trowel. The soil sample was placed in a labeled freezer bag. The trowel and any other instruments used for collection were washed with deionized water and dried with a clean paper towel. The location for the sample was recorded and the sample was placed in a cooler for transportation.

2.3 **Soil Extraction**

The soil extraction was performed by a modification of EPA method1668B. Samples were removed from a storage freezer and allowed to thaw. A portion of the sample was weighed and placed in a 104° oven for 12 hours, the water content was recorded and used later for wet and dry weight corrections. A separate portion of the sample (~5g) was combined with a known amount of combusted diatomaceous earth (450° for 12 hours) and crushed with a triple rinsed (Hexane, DCM, Methanol) mortar and pestle. The sample was ground until the diatomaceous earth absorbed the water in the soil. The sample was packed into an ASE-300 cell (100ml) with a known amount of combusted and deactivated (3% deionized water) silica gel. The ASE cell was injected with a surrogate standard for analytical efficiency. The cell was placed in an Accelerated Solvent Extractor (Dionex ASE-300) with a solution of equal parts acetone and hexane (pesticide grade), with a pressure of 10,300 kPa(1,500psi), 100°C, 5 min static time, 1 static cycle, 60% flush volume and purge at 90 seconds.

The extract was transferred by rinsing additional hexane into the ASE extraction bottle to a conical bottom tube and condensed down with nitrogen to 0.5 mL using a TurboVap II. The concentrated solution was then passed through a long Pasture pipette, with 0.1g combusted silica gel and 1g of acidified silica gel (2:1 silica gel: acid w/w). Hexane was passed through the column until a volume of 10 ml was collected. The solution was condensed down with nitrogen to 1mL using a TurboVap II. The final solution was placed into a GC vial and the internal standard was added.

2.4 **Soil Sample Quantification**

2.4.1 Analytical Standards and Modification of EPA Method 1668B

The method used for quantification of PCB concentrations in soil samples is a modification of EPA Method 1668B. The method requires a calibration standard solution, an internal standard solution, and a surrogate standard solution. The standards used in this study are detailed in and are also described in this section

The calibration standard was used to quantify target PCB congeners. It contains a known concentration of each of the 209 native congeners. The identity and concentration of each compound is listed in the Appendix. The calibration standard is injected and analyzed at the beginning of each sample batch run on the GC/MS/MS. The calibration solution was used to calculate the relative response factor (RRF) for each congener (Equation 2); the RRF is then used to calculate the concentration in each congener. The calibration solution also was used to determine the specific batch retention time for each congener. The specific batch retention time shifts each batch run and the retention times can be adjusted by analyzing the calibration solution results.

The internal standard used in conjunction with the calibration solution was used to calculate the masses of each congener found in the sample extract (Equation 1). The internal standard was injected prior to analysis with the GC/MS/MS; the known mass of internal standard was assumed to have no loss. The peak area of the internal standard in each sample was used to calculate the mass in each sample. PCB 204 was used as the internal standard.

The surrogate standard was used to determine the analytical efficiency for the soil samples. A known mass of surrogate standard was injected into each of the samples before extraction and cleanup. The analytical efficiency (or percent recovery) was determined by dividing the mass recovered from the sample extract by the known mass added to the sample prior to extraction. PCB 14, PCB 166, and PCB 65D were used as surrogate standards.

2.4.2 Quantification of PCBs in Samples

The mass of each PCB congener was quantified by the internal standard method where mass of the congener ($Mass_i$) is calculated by Equation 1.

$$Mass_i = RRF_i\ (Area_i)(Mass_{instd}/Area_{instd}) \qquad \text{Equation 1}$$

Where $Mass_{instd}$ is the known mass of internal standard injected in to the sample, $Area_{instd}$ is the integrated area of the internal standard for the sample, $Area_i$ is the integrated area of the desired PCB congener, and the Relative Response Factor (RRF) is calculated from the calibration solution and is calculated in Equation 2.

$$RRF_i = \frac{(Mass_i/Area_i)}{(Mass_{instd}/Area_{instd})} \qquad \text{Equation 2}$$

Where $Mass_i$ is the known mass of PCB congener in the calibration solution and $Area_i$ is the integrated area of the PCB congener.

The final mass of each of the congeners was corrected by using the percent recovery from the surrogate standard injected in each sample.

$$Corrected\ Mass_i = \frac{Mass_i}{percent\ recovery\ of\ surrogate} \qquad \text{Equation 3}$$

2.4.3 Analytical Instrumentation

Analysis of all of the samples was done using a Waters Quattro Micro GC® also referred to as a gas chromatogram/ mass spectrometer/ mass spectrometer (GC/MS/MS) or tandem mass spectrometer. The tandem mass spectrometer works on the same principle as a standard gas chromatogram coupled with a single quadrupole mass spectrometer. A standard quadrupole analyzer contains four parallel metal rods arranged symmetrically, with one pair of rods having a positive electrical charge and the second pair of rods having a negative electrical charge, both with a continuous direct current (DC) and radio frequency (RF) voltage applied to the rods. A specific amplitude ratio of DC/RF applied a resulting resonation is created by the rods, when kept constant this resonation selects for specific ions with a given m/z charge ratio. The selected ions oscillation frequency allows the ions to have stable movement and avoid collision with the metallic rods and reach the mass detector.

Unlike standard mass spectrometers, the tandem mass spectrometer contains two quadrupoles separated by a collision cell that creates a dissociation region between the two quadrupoles. The lifetime of a molecule through the dual quadrupoles begins with an initial ionization by an electrical filament contained within the source of ionization. The ion then travels into the first quadrupole and the selected m/z ratio is selected upon. These selected ions (parent ions) then travel into the collision cell where the ions are accelerated by bombardment by argon gas therefore increasing the number of collisions. The accelerated particles collision within the cell creates fragments of the parent ion, referred to as daughter ions. These daughter ions proceed into the second quadrupole where they are also selected upon. The selected daughter ions finally move into the detector and analyzed resulting in a spectrum.

The benefits of the tandem mass spectrometer is analysis with greater selectivity, as described above, by using Selected Ion Monitoring (SIM) for specific parent and daughter ions. This increased selectivity, although reduces ion transmission, also decreases chemical interference which allows for quantitative analysis of complex environmental and biological samples. This chemical interference is common with PCB samples, where congeners will often co-elute; however, the tandem mass spectrometer allows for molecules with retention time co-elution to be separated by creation of specific parent daughter ion windows.

Each of the mass spectrometer ion windows select upon individual PCB homolog groups parent and daughter ions, allowing for separation of congeners that have the same retention time, but are found in different homolog groups. The mass spectrometer parameters used can be found in Table 2-1, the first two ion pairs are used to select upon native congeners and the last two ion pairs are used to select upon the labeled standards. This use of ion windows to distinguish chemicals in samples loaded with various compounds is beneficial to PCB analysis where 209 congeners are present in the environment; however, traditional methods of PCB analysis were limited to analyzing only a few Aroclor mixtures that were produced. In order to utilize the full potential of the GC/MS/MS in analysis of complex environmental samples of PCBs, EPA Method 1668A was chosen to apply in the analysis and quantification of PCBs as it identifies all 209 congeners in its method and quantifies 170 congener groups.

The EPA Method 1668A gives parameters for both a traditional DB-5 chromatography column as well as a novel *SPB™-Octyl* chromatography column from *Supleco*. Although separation of co-eluting congeners within individual homolog groups cannot fully be achieved by either column, when used simultaneously for samples all 209 congeners can be identified. Due to time and cost constraints the SPB™-Octyl column was chosen for this research as it allows for more congeners within homolog groups to be separated compared to the DB-5 column. The column used was a *Supleco SPB™-Octyl* fused silica capillary column with dimension 30m x 0.25mm x 0.25μm film thickness and inlet parameters used for this study are found in Table 2-1. (Persoon, 2006)

Table 2-1. Mass spectrum windows defined by parent/daughter ion pairs for each homolog group for PCB analysis using the tandem mass spectrometer and modified version of EPA Method 1668A. The first two ion pairs are used to select upon native congeners and the last two ion pairs are used to select upon the labeled standards.

Mass Spectrum Parent/Daughter Ion Windows

Homolog group	**Parent/daughter ion pair**	**Scan time (min)**
Mono	188/152, 188/153	3.0-22.0
Di	222/152.10, 224/152.10	10.0-29.0
Tri	255.96/186, 257.96/188	15.0-36.0
Tetra	291.92/222, 293.92/222	20.0-44.0
Penta	325.88/255.90, 327.88/255.90	25.0-54.0
Hexa	359.84/284.90, 361.84/289.90	30.0-57.0
Hepta	393.80/323.90, 395.80/325.90	38.0-59.0
Octa	427.76/357.80, 429.76/359.80	40.0-60.0
Nona	461.72/391.86, 463.72/393.80	50.0-62.0
Deca	497.68/427.70, 499.68/429.70	55.0-65.0

Table 2-2. GC parameters for PCB analysis using the tandem mass spectrometer and modified version of EPA Method 1668A.

Inlet Parameters

Injector		
	Splitless	
	Temperature (Celsius)	270
	Purge time (min)	1.9
	Purge flow rate(mL/min)	40
Column		
	Pressure (kPa)	78.3
	Flow rate(mL/min)	1.2
Oven		
	Initial temperature(Celsius)	75
	Temperature ramp 1(Celsius/min)	15
	Final temperature ramp 1(Celsius)	150
	Temperature ramp 2(Celsius/min)	2.5
	Final temperature ramp 2(Celsius)	290
	Total run time (min)	65

2.4.4 Identification of PCB Congeners in Chromatograms

Identification of PCB retention time peaks on chromatograms was done by analysis of the calibration standard, along with individual analysis of PCB congeners 3, 14, 30, 65, 166, and 204 whose retention times were used as reference points for chromatographic identification. Labeled chromatograms containing all identified PCBs can be seen in Figure 2-3. Relative retention times (RRT) for all identified PCBs were calculated by dividing congener retention time by a labeled surrogate standard reference retention time. (Persoon, 2006) Using the calibration solution shown in Figure 2-3 the identification of each of the retention times for each PCB can be identified for each sample.

Figure 2-3. Labeled chromatograms for 209 PCB congeners using the tandem mass spectrometer and modified version of EPA Method 1668A. Chromatograms are divided into homolog groups.

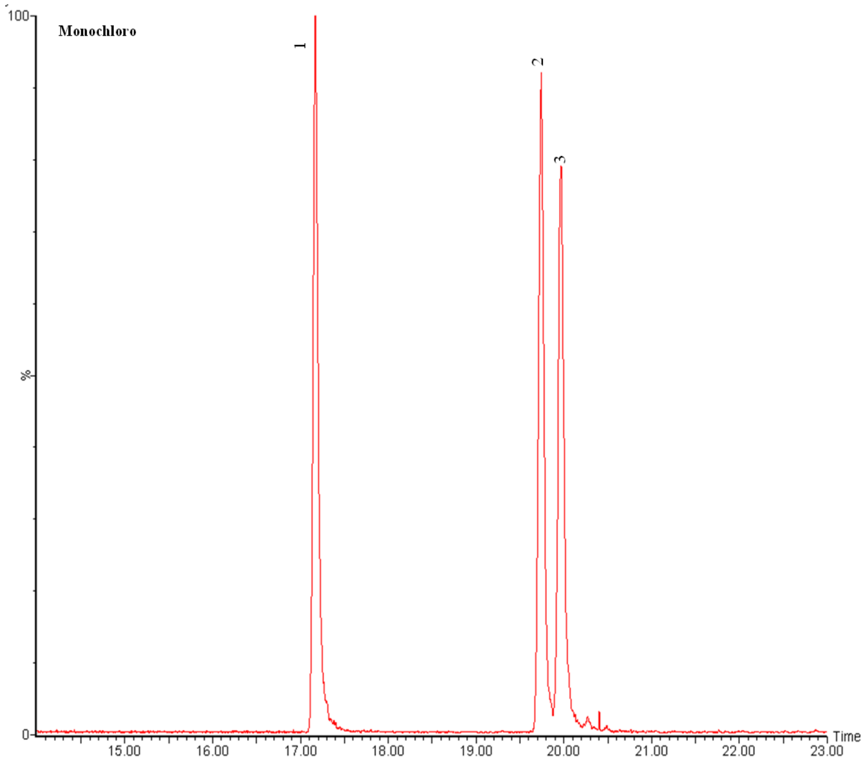


Figure 2-3 – continued

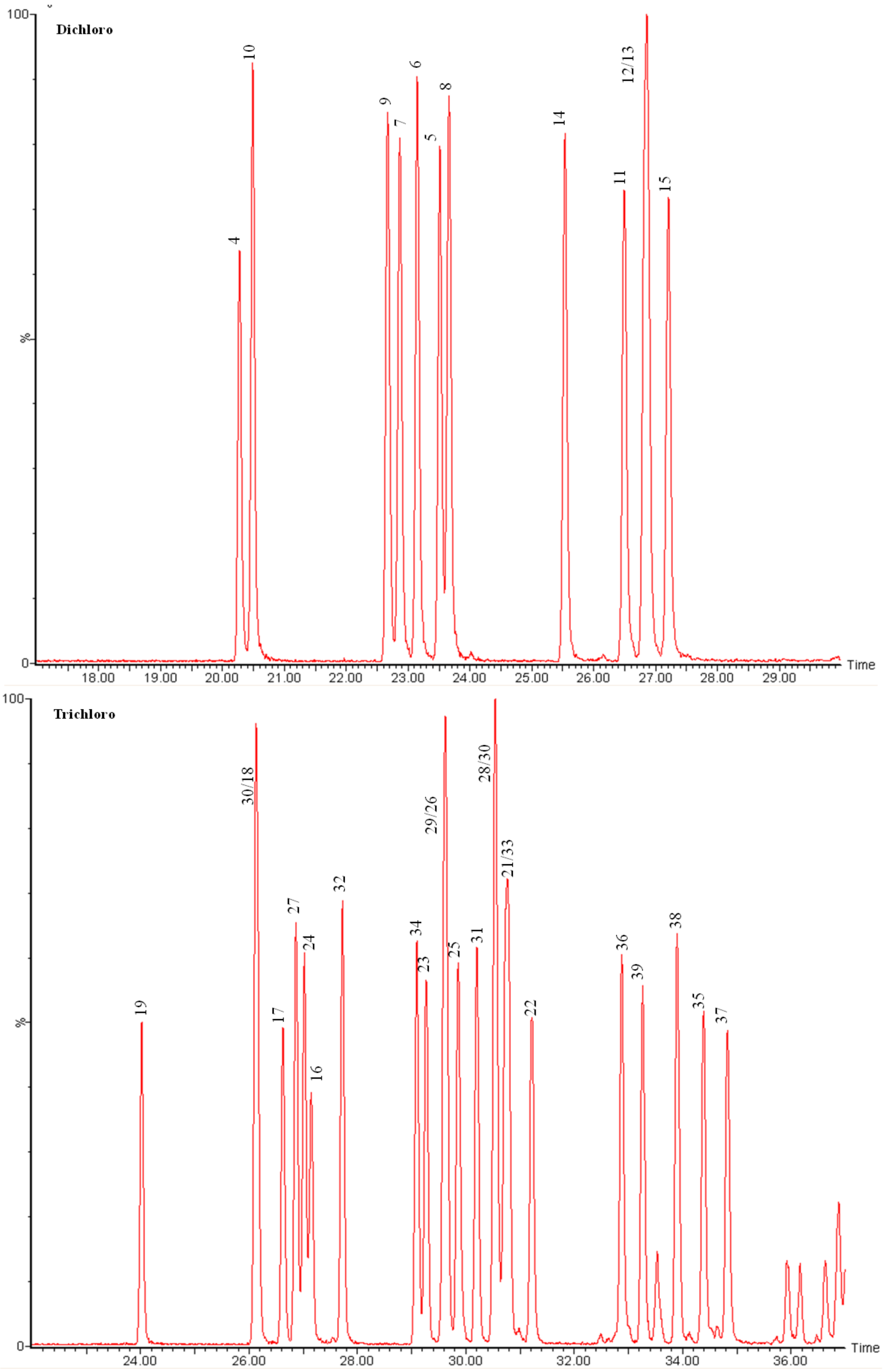


Figure 2-3 – continued

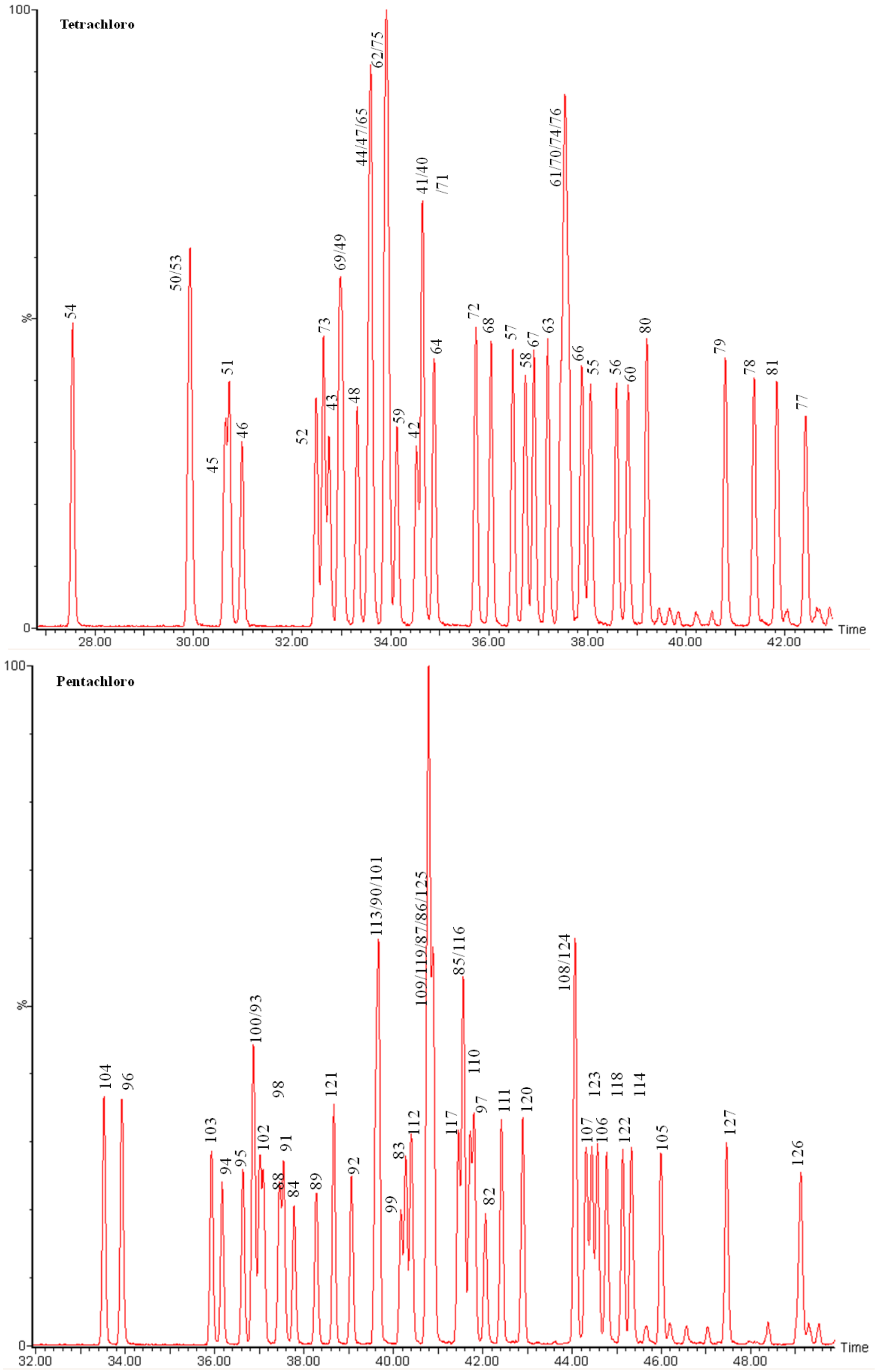


Figure 2-3 – continued

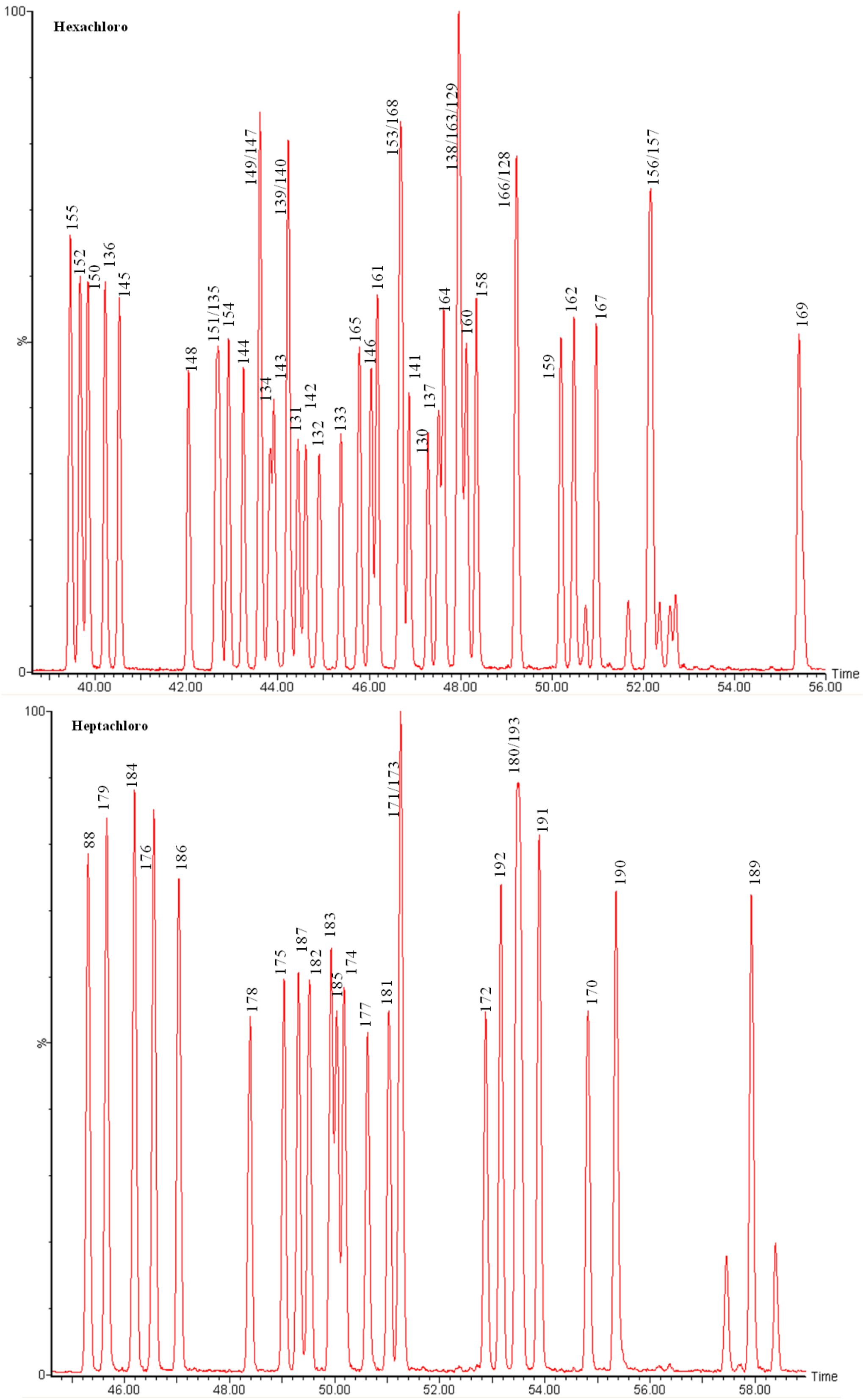


Figure 2-3 – continued

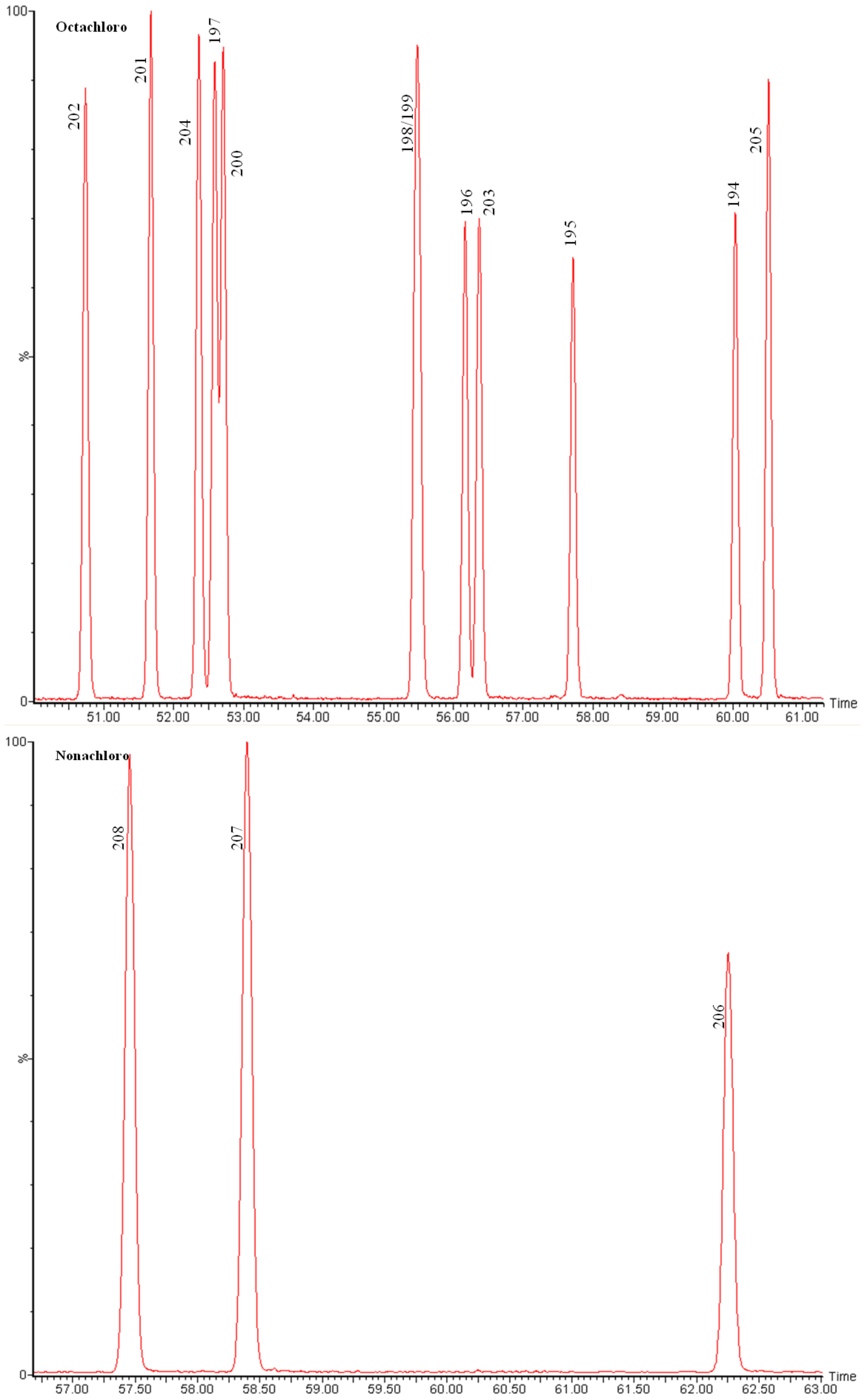
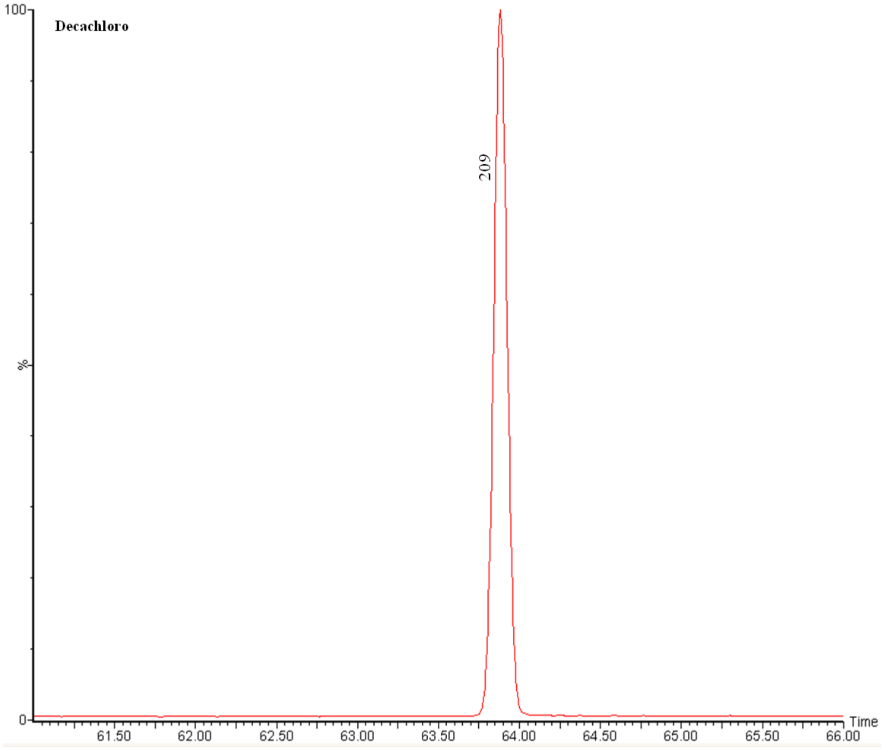


Figure 2-3 – continued


Decachloro
100
%
0
209
61.50
62.00
62.50
63.00
63.50
64.00
64.50
65.00
65.50
66.00
Time

CHAPTER 3
RESULTS AND DISCUSSION

3.1**Quality Control**

Confidence in a data set is vital when trying to accurately represent current conditions and draw conclusions about the effects of the 2008 flood. To increase the confidence in the data set four individual techniques establish the reliability of the data set. The use of surrogate recoveries determines the quality and efficiency of laboratory procedures. The use of method blanks allows for the exclusion of contamination from field or lab sources. Sample duplicates help identify possible artifacts from sampling or analysis. A standard reference material was also analyzed to verify the methodology.

3.1.1 Surrogate Recoveries

As mentioned above in the analytical procedures, a known concentration of PCB 14, PCB 65, and PCB 166 was injected to each sample prior to extraction. Since the initial mass was known the amount of surrogate recovered provides a measure of analytical quality and efficiency.

Potential routes of PCB loss are numerous within the extraction and analysis procedures. PCBs can volatilize into the surrounding atmosphere, adsorb to glassware, or even sample mishandling can cause direct sample loss. The ASE extraction method can also be incomplete. Each of the PCB homolog groups can posses different volatilization rates and sorption characteristics. To decrease the variability of these factors, three PCBs were used as a surrogate sample. PCB 14, PCB 65 andPCB 166 were selected because of their absence from commercial Arochor mixtures. These congeners are not found in environmental samples and therefore can provide accurate details regarding efficiency of analysis

Overalls surrogate recoveries for the soil samples were ranging from 55% to 170%. The arithmetic mean and, plus or minus one standard deviation for the surrogates 14, 65, and 166 injected into the soil samples before extraction are 90.2±18.8%, 95.51+20.9%, and 108.0+22.2% respectively. Figure 3-1 displays the average recovery of the surrogates for each sample, separated by each analytical batch. Figure 3-2 shows the ratio of PCB 14 to PCB 166 this can indicate the type of loss in a sample batch, A lower ratio indicating volatilization and a higher indicating straight sample loss.

The high percentage of surrogate recoveries indicates a minimal loss of mass during handling and extraction. The recovery for each surrogate was similar for each sample, showing that most the loss of mass was equal across all the homolog groups and not just due to volatilization or sorption. If a sample had a surrogate recovery lower than 50% a duplicate sample was extracted and the previous sample information was removed from the data set.

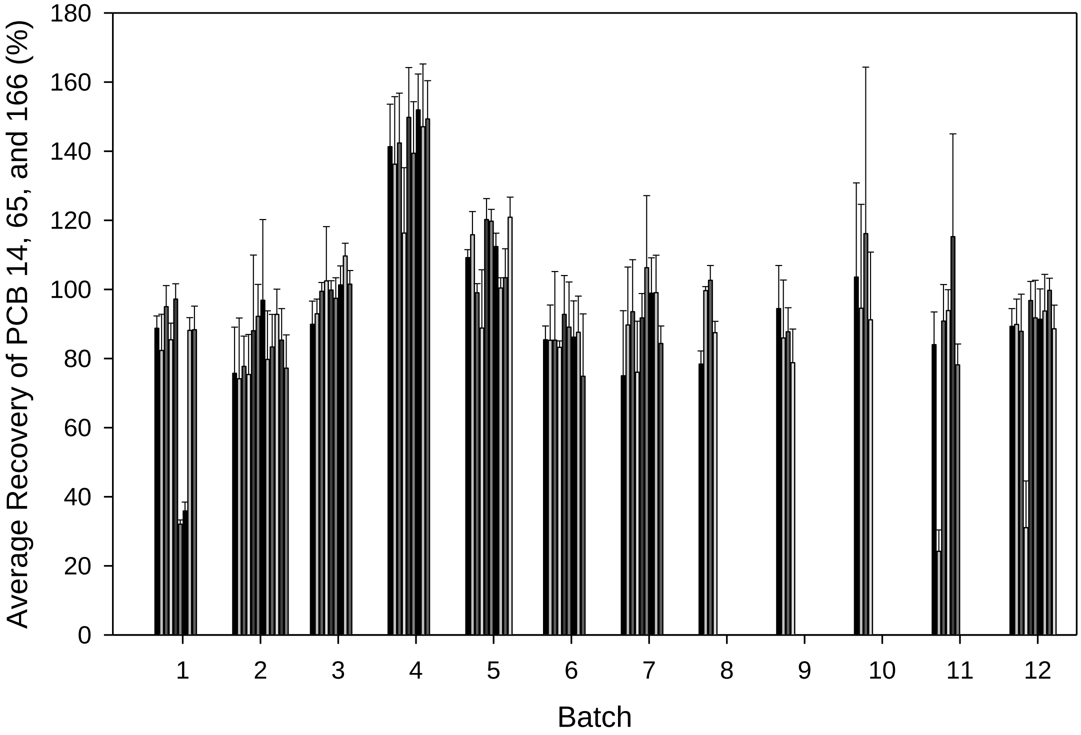


Figure 3-1. Average recovery of PCB 14, 65, and 166 for each sample and batch. The error bars represent one standard deviation above the arithmetic mean.

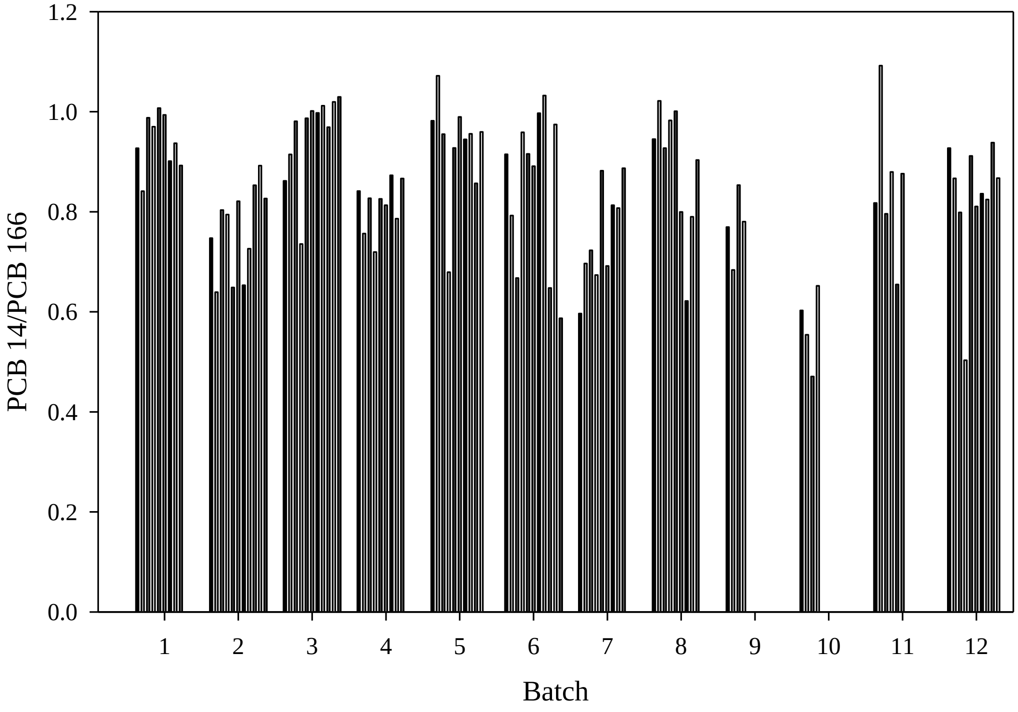


Figure 3-2. Graph of the ratio of PCB 14 recovery to PCB 166 recovery for each sample and batch

3.1.2 Sample Replicates

Sample triplicates were analyzed to help determine sampling variability for each of the samples. Six separate samples were extracted for triplicate comparison. The samples were quantified and the relative standard deviation was calculated. The average relative standard deviation of 33% is acceptable for this analysis. This percentage is acceptable because each aliquot was taken from a fresh section of the sample bag. This introduced a degree of uncertainty. Each replicate also showed similar congener profiles and further enhanced the precision of the data set.

Table 3-1. Summary of replicate analysis

Sample ID	*n*	Mean (ng/g d.w.)	Standard Deviation	Relative Standard Deviation
F17	3	60	19	32%
F18	3	37	20	54%
F27	3	87	28	32%
G13	3	17	8	48%
H4	4	318	82	26%
H6	3	104	5	5%
			Average	33%

3.1.3 Limit of Quantification

Determining the limit of quantification allows for further confidence in the data set. Using the method blanks the noise can be used to calculate the detection limit for each congener. Three separate blanks were analyzed and peak was drawn at each retention time. The mass was calculated and averaged for each congener. Three times the standard deviation of the data set was used as the detection limitFigure 3-3 below shows the limit of quantification for each of the congeners. Most of the congeners did not have quantification issues. But many of the samples detected PCB 156+157 (hexachloro) because a ghost peak from PCB 204 (octachloro) appeared at the same retention time. Sometimes the ghost peak from PCB 204 coeluted with the PCB 156+157 parent ion making the error in quantification higher.

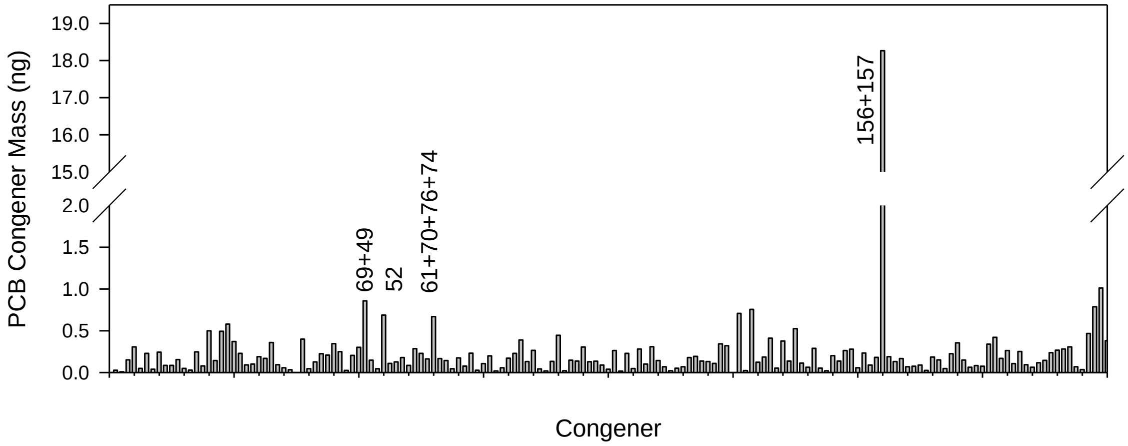


Figure 3-3. Limit of quantification for each congener determined from method blank analysis

3.1.4 Standard Reference Material Analysis

The use of a standard reference material can help improve the certainty of the accuracy of a data set. The material can also help determine which surrogate standards to use for each homolog group. Since the mass fraction is known the different standard recoveries can be adjusted for accuracy. Figure 3-4 presents the results of analyzing Standard Reference Material (SRM) 1944 for PCBs. As noted above in Limits of Quantification there were issues with the internal standard PCB 204 daughter ioan coeluting with PCB 156+157. This issue contributed to some of the error in the PCB 157 and 157.

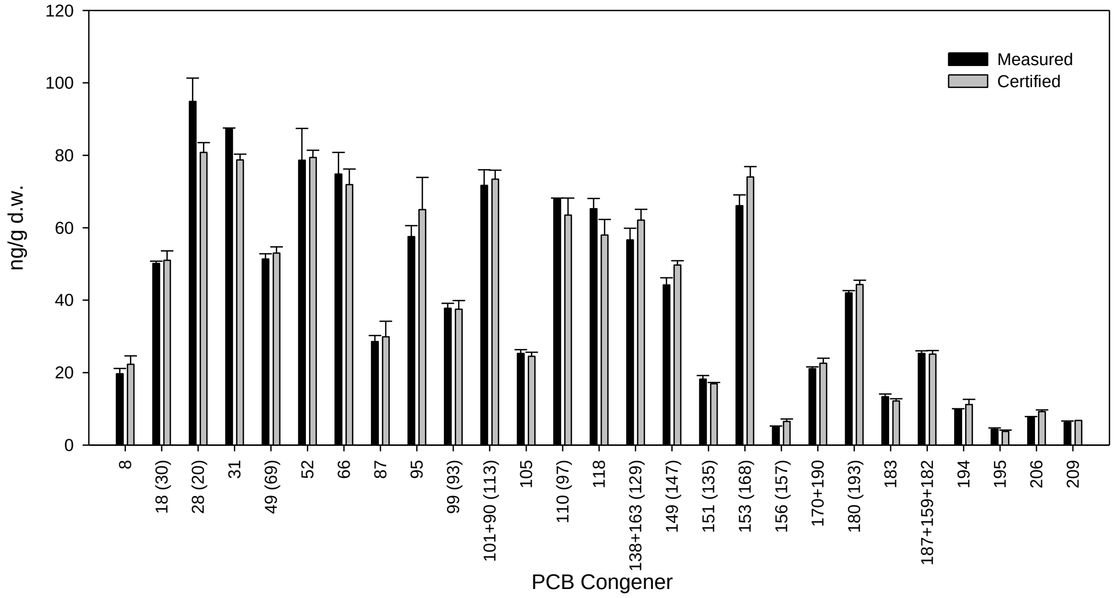


Figure 3-4. Standard Reference Material ® 1944 quantification results. The error bar represents on standard deviation above the arithmetic mean. The black bars represent the measured values observed with the analytical method. The gray bars are the values certified by the National Institute of Standard and Technology

Table 3-2. Measured mass fractions for Standard Reference Material ® 1944 compared to certified results

Congener	Measured (ng/g dry wt.)			Certified (ng/g dry wt.)			Percent Difference
8	19.7	±	1.50	22.3	±	2.30	12.5%
18 (30)	50.1	±	0.65	51	±	2.60	1.7%
28 (20)	94.9	±	6.43	80.8	±	2.70	16.0%
31	87.4	±	0.15	78.7	±	1.60	10.5%
49 (69)	51.4	±	1.42	53	±	1.70	3.1%
52	78.6	±	8.79	79.4	±	2.00	1.0%
66	74.8	±	5.96	71.9	±	4.30	4.0%
87	28.6	±	1.67	29.9	±	4.30	4.6%
95	57.5	±	3.04	65	±	8.90	12.2%
99 (93)	37.8	±	1.33	37.5	±	2.40	0.8%
101+90 (113)	71.7	±	4.30	73.4	±	2.50	2.4%
105	25.3	±	1.07	24.5	±	1.10	3.1%
110 (97)	67.9	±	0.24	63.5	±	4.70	6.8%
118	65.3	±	2.83	58	±	4.30	11.8%
138+163 (129)	56.6	±	3.26	62.1	±	3.00	9.2%
149 (147)	44.2	±	1.99	49.7	±	1.20	11.7%
151 (135)	18.2	±	1.00	16.93	±	0.36	7.2%
153 (168)	66.1	±	2.98	74	±	2.90	11.3%
156 (157)	5.0	±	0.26	6.52	±	0.66	26.6%
170+190	21.1	±	0.51	22.6	±	1.40	6.9%
180 (193)	42.0	±	0.63	44.3	±	1.20	5.3%
183	13.3	±	0.76	12.19	±	0.57	9.0%
187+159+182	25.3	±	0.73	25.1	±	1.00	0.7%
194	10.0	±	0.09	11.2	±	1.40	11.8%
195	4.3	±	0.42	3.75	±	0.39	14.0%
206	7.7	±	0.14	9.21	±	0.51	17.5%
209	6.3	±	0.36	6.81	±	0.33	8.2%

3.2 **Sediment Concentrations in Cedar Rapids**

All of the samples tested found detectable quantities of PCBs. The total concentration of PCBs for all of the samples ranged from 2 to 800 ng/g dry weight (d.w.), with an average of 67±120 ng/g d.w. Figure 3-5 shows the total PCB concentrations overlaid on a map of Cedar Rapids. The map displays proportional sized red dots corresponding to the total concentration of PCBs in the sample. There seems to be a correlation between the total concentration and the distance from the river. This correlation is addressed in the following section. The map of the total concentrations shows that the concentrations vary throughout the city. There seems to be a higher concentration near the river bend but there are many points near river that have a low concentration. Many of the higher concentrations are outside the flood plain, hinting that the flood waters may have cleaned the soil. But without pre-flood samples the possibility cannot be confirmed.

The sample sites can be divided into 3 visible areas, (denoted by numbers and colored circles in Figure 3-5). Section A is in the industrial area and although there isn't a pattern related to the distance to the river there is the largest concentration of PCBs right next to an industrial building, suggesting a possible contamination from the industry. Section B is the combination of samples next to the river and samples outside the flood plain. The samples near the river are higher than one of the samples outside the flood plain but lower than the rest of the samples. Section C is in a large residential area that has high and low concentrations near the river and a very low value for the outside flood plain sample.

Figure 3-6 shows the average congener profile in mass fraction for samples in and out of the flood plain. The figure also shows the difference in mass fraction between each sample. Figure 3-7 shows the comparison of the in-flood mass fraction to the out-flood mass fraction for each congener. Similarity between congener patterns was assessed quantitatively by using the cosine Θ metric (DeCaprio, et al., 2008) which compares two patterns by treating each as a vector and resolving the cosine of the angle between the two vectors. The two sample sets have a cosine Θ value of 0.969 where a value of 1 indicates a cosine of 0° and a similar pattern.

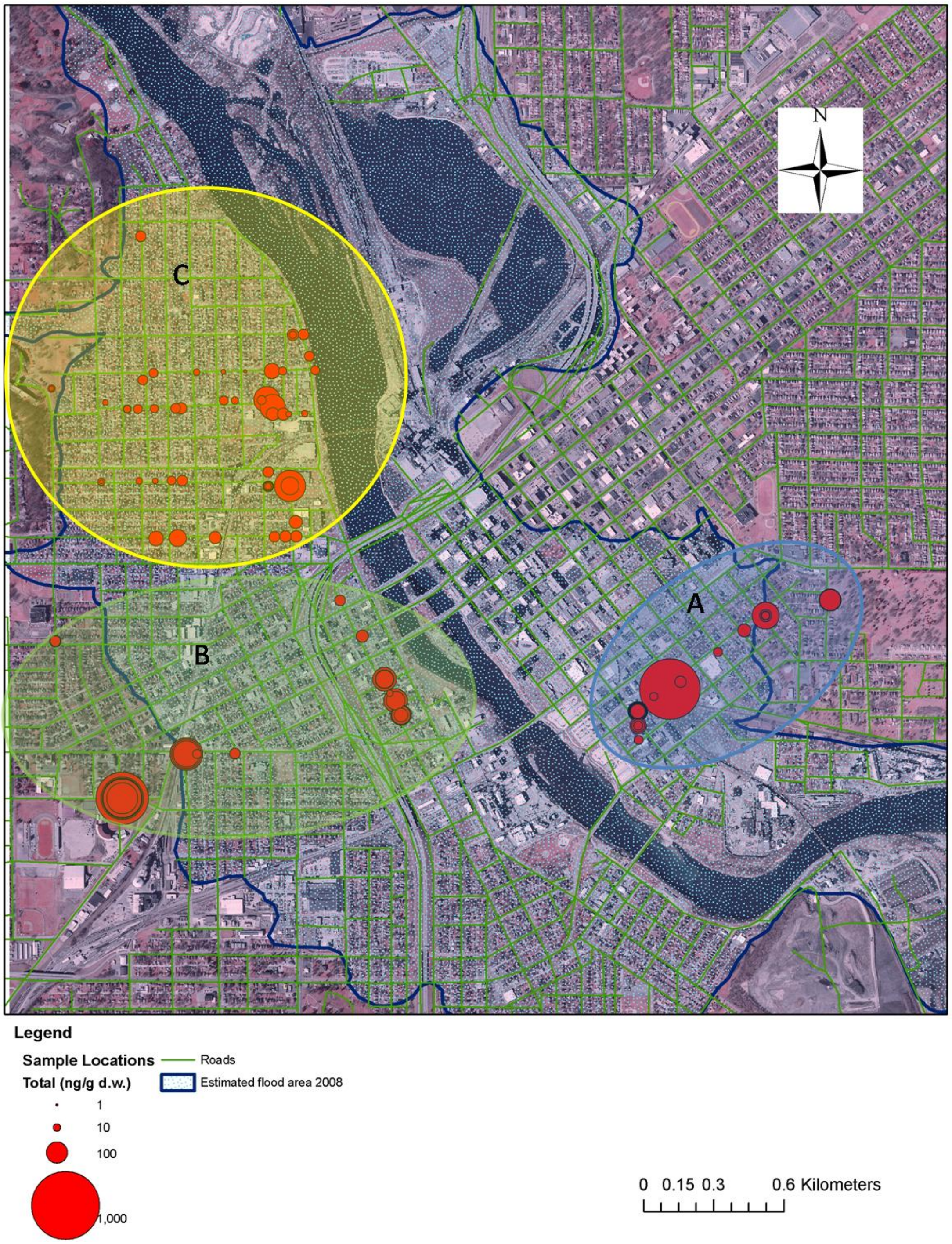


Figure 3-5. Total PCB concentration (ng/g d.w.) for soil samples gathered in Cedar Rapids, Iowa

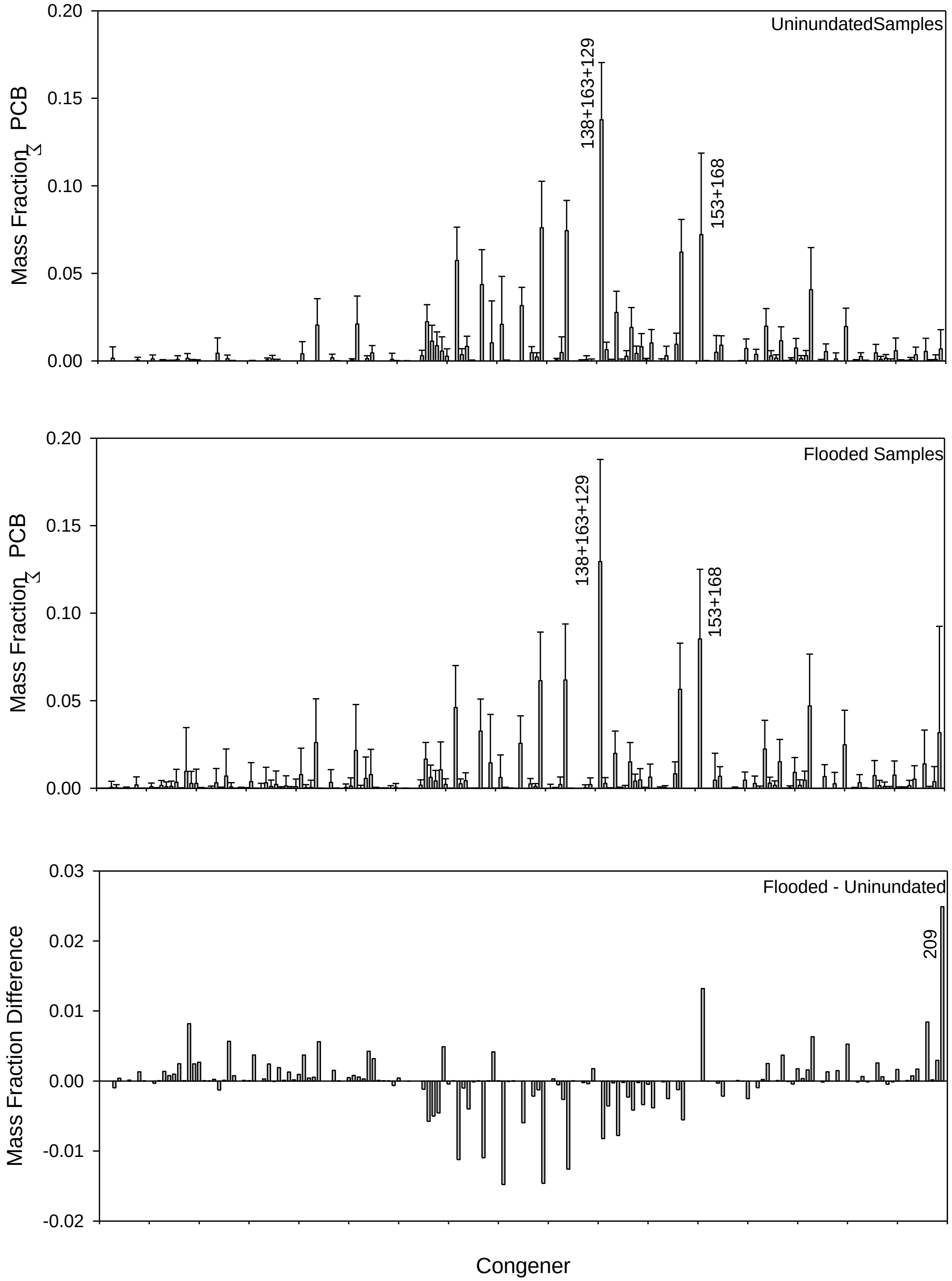


Figure 3-6. Average congener profile for uninundated and inundated samples. The mass fraction difference was calculated by subtracting the uninundated from the flooded samples. A positive value indicates a higher presence in flooded samples.

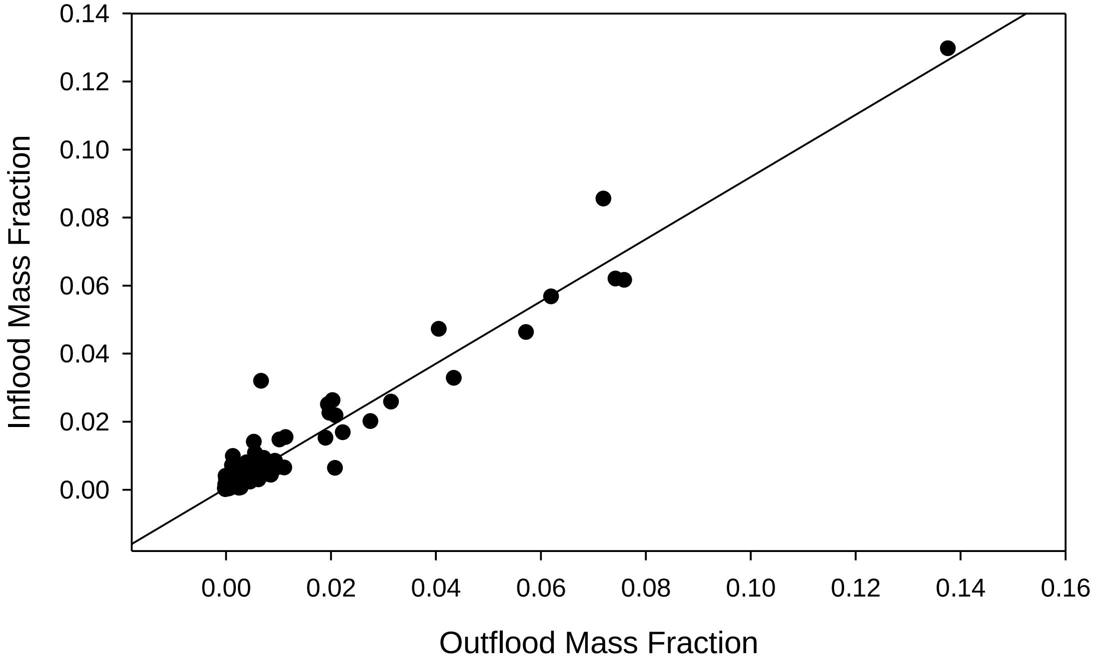


Figure 3-7. Multidimensional comparison of flooded and un-flooded samples indicating a cosine Θ of 0.969. This shows that the sample data sets have a similar congener pattern

3.2.1 Linear Comparison

Using the latitude and longitude coordinates for each of the samples and a map of the normal river location, comparisons between the total concentration and the distance to the river can be made. Figure 3-8 shows the distance from the river and the total PCB concentration for each sample. The linear trendline has a very poor fit (r^2=0.05) and appears to have a bimodal distribution, with the concentration increasing around 200 meters and 800 meters.

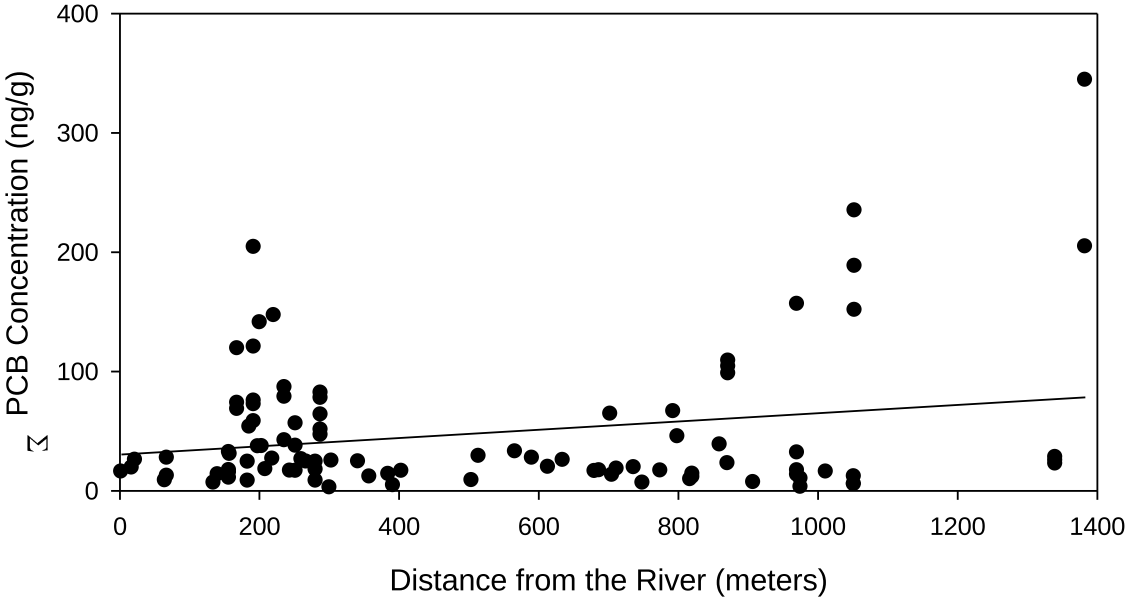


Figure 3-8. Linear comparison of total PCB concentration and distance from the Cedar River. The highest concentration point is not shown for data visibility. The data is bimodal with data gathering around 200 meters and 900 meters. The linear regression has a poor fit with an r^2 of 0.05.

3.3 Summary of Results

In conclusion, the data does not show that the flood brought significant concentrations of PCBs into the City of Cedar Rapids. When comparing the samples to previous urban data in France, the Siene River basin had PCB concentrations ranging from 0.09 to 150 ng g^{-1} d.w. and the Cedar Rapids soil ranged from 2 to 800 ng $^{-1}$ d.w. Although the Siene River only analyzed 7 PCBs (28, 52, 101, 118, 138, 153, and 180), ranges are still in similar orders of magnitude. Concentrations outside of the flood plain were similar to the concentrations found in the flood plain. Additionally the average congener profile for flooded and undisturbed soil were similar. The cosine Θ value of 0.976 indicates a high degree of similarity between the samples that were flooded and the samples that were untouched by the flood waters.

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APPENDIX
RAW DATA AND CALCULATIONS

*All units for the following tables are ng per g dry weight

Sample ID →	F24	F25	B19	F5	B24	F26	F10	B26	B33
14	7.96	9.44	10.41	9.50	9.63	8.38	9.13	8.24	9.38
44/65/47	10.51	11.75	11.28	11.86	10.99	10.28	10.98	10.59	13.21
166/128	10.80	15.19	12.90	13.45	12.05	11.21	12.75	11.61	16.36
204	19.17	26.19	21.11	24.39	19.66	55.29	53.33	20.38	29.77
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.07	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.10	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21
30/18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	1.27	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.18
21/33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13
22	0.48	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.39	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.20
32	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.33	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	1.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53/50	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	2.00	0.83	0.00	0.83	0.00	0.00	0.00	0.00	0.41
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61/70/76/74	0.91	0.67	0.00	0.72	0.00	1.02	0.00	0.00	0.36
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.67	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00
66	0.51	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83	0.62	1.16	0.35	0.90	0.00	0.00	0.00	0.00	0.42
84	0.00	0.39	0.00	0.58	0.00	0.00	0.00	0.00	0.00
116/85	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
109/119/87/86/125/115	0.46	1.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.85	2.55	0.82	1.62	0.31	0.93	1.06	0.34	0.72
91	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
92	0.00	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.62	1.45	0.51	1.03	0.00	0.00	0.00	0.28	0.63

96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.28	1.21
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.62	2.04	0.32	0.68	0.21	0.00	0.00	0.00	0.49
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.19	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00
108/124	0.15	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	1.39	4.41	0.78	2.43	0.83	0.00	1.37	0.28	1.27
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118	1.59	4.72	0.98	2.29	0.00	0.84	1.32	0.27	1.41
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	4.29	9.98	1.88	2.66	1.25	2.63	3.19	0.50	3.69
130	0.25	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.60	2.12	0.57	0.53	0.34	0.00	0.00	0.00	0.00
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151/135	0.47	1.60	0.50	0.00	0.00	0.00	0.00	0.00	0.63
136	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00
137	0.00	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	0.29	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.50	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.39
149/147	1.65	4.29	1.11	1.33	0.64	1.19	1.46	0.23	1.47
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

153/168	2.88	6.72	1.11	1.90	0.87	1.60	2.80	0.29	2.15
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.30	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.37
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.20	0.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.21	0.37	0.35	0.00	0.00	0.00	0.00	0.00	0.00
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.86	2.37	0.69	0.38	0.00	0.00	0.00	0.00	0.95
173/171	0.25	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
172	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
174	0.75	1.58	0.00	0.00	0.00	0.00	0.00	0.00	0.48
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
177	0.61	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.60
178	0.00	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179	0.30	0.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00
180/193	2.11	4.39	0.85	0.00	0.57	0.00	1.61	0.00	1.71
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.37	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.45	0.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	1.24	2.16	0.00	0.31	0.65	0.00	0.00	0.00	1.14
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190	0.22	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00
191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.55	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
195	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.61	0.72	0.00	0.00	0.30	0.00	0.00	0.00	0.00
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.26	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00

203	0.61	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	2.40	1.46	0.00	0.00	0.86	0.00	0.00	0.00	1.07
207	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
208	0.96	0.61	0.00	0.00	0.40	0.00	0.00	0.00	0.49
209	0.00	1.57	0.45	0.00	1.38	0.00	0.00	0.00	1.76
Total	42.05	75.28	11.27	18.18	8.61	8.20	13.17	2.55	25.69

Sample ID →	**F19**	**G14**	**G12**	**F17**	**E35**	**B18**	**B34**	**F30**	**G23**
14	10.38	9.08	9.42	9.87	9.64	10.30	9.22	9.43	10.97
44/65/47	13.84	10.67	12.23	14.07	19.17	13.46	10.76	11.24	13.82
166/128	14.41	12.75	16.19	13.40	16.46	15.82	12.06	11.79	14.80
204	28.20	24.56	24.41	22.93	26.18	28.20	21.91	19.92	26.38
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.11	0.00	0.00	0.17	0.00	0.00	0.00
4	0.00	0.00	0.00	0.36	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.13	0.00	0.00	1.09	0.29	0.22	0.23	0.27	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.17	0.00	0.00	0.65	1.03	0.13	0.00	0.12	0.00
16	0.17	0.00	0.00	0.87	0.37	0.00	0.20	0.23	0.00
17	0.00	0.00	0.00	0.92	0.00	0.00	0.18	0.30	0.00
30/18	0.27	0.00	0.00	1.83	0.95	0.26	0.46	0.42	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.34	0.00	0.00	2.91	5.36	0.36	0.56	1.02	0.00
21/33	0.21	0.00	0.00	1.65	1.65	0.21	0.32	0.47	0.00
22	0.00	0.00	0.00	0.82	1.77	0.15	0.00	0.28	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00
26/29	0.00	0.00	0.00	0.41	0.65	0.00	0.00	0.13	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.24	0.00	0.00	2.17	4.87	0.27	0.49	0.85	0.00
32	0.00	0.00	0.00	0.43	0.19	0.00	0.00	0.14	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.19	0.00	0.00	0.77	4.41	0.00	0.19	0.23	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.00	0.00	0.73	1.89	0.00	0.00	0.31	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.36	1.41	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.55	1.00	0.00	0.00	0.00	0.00
69/49	0.00	0.00	0.31	1.03	6.00	0.00	0.00	0.40	0.00
53/50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.46	0.37	3.00	2.50	7.44	0.41	0.51	0.65	0.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	1.28	6.52	0.00	0.00	0.39	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.25	0.72	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.63	4.37	0.00	0.00	0.31	0.00
61/70/76/74	0.90	0.26	2.02	5.18	16.45	0.66	0.95	1.89	0.00
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.85	4.19	0.00	0.00	0.31	0.00
66	0.31	0.00	0.00	2.59	12.66	0.33	0.41	0.75	0.00
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	2.35	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.44	0.00	1.22	0.00	0.00	0.00	0.00
83	0.47	0.32	1.98	1.64	3.10	0.37	0.30	0.74	0.00
84	0.00	0.00	1.33	0.86	1.02	0.00	0.00	0.27	0.00
116/85	0.00	0.00	0.48	0.00	3.11	0.00	0.00	0.37	0.00
109/119/87/86/125/115	0.00	0.37	0.00	0.00	5.18	0.00	0.00	0.97	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.73	0.45	6.32	2.59	6.02	0.60	0.59	1.08	0.37

91	0.00	0.00	0.54	0.41	0.93	0.00	0.00	0.00	0.00
92	0.00	0.00	0.72	0.00	0.78	0.00	0.00	0.22	0.00
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.60	0.47	4.55	1.66	3.17	0.52	0.32	0.87	0.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.82	0.00	6.52	4.14	0.00	0.64	0.56	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.48	0.38	2.09	2.95	5.14	0.71	0.47	1.08	0.00
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00
108/124	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
110	0.87	1.58	6.89	4.37	8.77	0.68	0.59	1.53	0.43
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118	1.06	0.70	5.93	5.57	7.41	1.31	0.83	2.02	0.60
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	2.22	3.40	8.31	5.96	4.69	1.91	1.49	3.33	0.95
130	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.00	0.00
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.43	0.70	2.57	1.06	1.23	0.00	0.00	0.40	0.00
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151/135	0.36	0.60	0.88	0.80	0.67	0.00	0.00	0.50	0.00
136	0.00	0.24	0.58	0.35	0.35	0.00	0.00	0.16	0.00
137	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	0.36	0.00	0.39	0.57	0.57	0.00	0.00	0.29	0.00
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

146	0.00	0.33	0.81	0.33	0.00	0.00	0.00	0.25	0.00
149/147	1.21	1.84	4.45	2.92	3.10	0.75	0.40	0.91	0.00
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	1.52	1.87	4.80	3.34	3.43	1.31	0.79	2.23	0.58
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.22	0.44	0.55	0.58	0.45	0.00	0.00	0.00	0.00
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.00	0.00	0.63	0.28	0.00	0.00	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.33	0.00	0.00	0.00	0.00	0.00
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.53	1.00	1.35	1.34	0.77	0.00	0.00	0.74	0.00
173/171	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00	0.00
172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
174	0.41	1.00	0.56	0.77	0.65	0.00	0.00	0.56	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
177	0.42	0.40	0.00	0.56	0.00	0.00	0.00	0.54	0.00
178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
179	0.00	0.33	0.00	0.42	0.00	0.00	0.00	0.00	0.00
180/193	1.08	2.24	1.60	1.83	1.83	0.58	0.42	1.35	0.00
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.39	0.00	0.43	0.00	0.00	0.00	0.00	0.00
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	0.66	1.13	0.74	1.17	0.89	0.50	0.42	0.95	0.00
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.30	0.00
191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.00	0.47	0.00	0.47	0.00	0.00	0.00	0.00	0.00
195	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.00	0.27	0.00	0.29	0.00	0.00	0.00	0.20	0.00
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
203	0.00	0.33	0.00	0.46	0.00	0.00	0.00	0.39	0.00
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.00	0.79	0.00	0.58	0.00	0.00	0.00	0.00	0.00
207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
208	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
209	0.00	0.96	0.71	0.62	0.00	0.91	0.53	0.38	0.00
Total	17.83	24.12	72.19	81.95	151.25	13.94	12.21	32.12	2.93

Sample ID →	**B1**	**F30-1**	**F30-2**	**F30-3**	**G17**	**B31**	**B4**	**B6**	**B10**
14	10.50	10.93	9.18	9.58	11.64	12.53	10.63	12.10	10.50
44/65/47	14.30	14.50	10.96	13.12	16.25	17.35	14.49	18.18	14.33
166/128	14.99	17.54	13.88	16.28	15.77	15.99	12.64	19.19	12.41
204	29.24	52.30	42.89	57.46	24.22	24.63	18.97	24.01	18.64
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30/18	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.38	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.10
21/33	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.35	0.00	0.00	0.00	0.00	0.00	0.07	0.09	0.09
32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.33	0.16
53/50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.45	0.00	0.00	0.00	0.30	0.44	0.30	1.75	0.73
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.13	0.17
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08
61/70/76/74	0.91	0.00	0.00	0.00	0.29	0.38	0.27	1.22	0.84
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.29	0.15
66	0.00	0.00	0.00	0.00	0.00	0.11	0.11	0.32	0.30
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.23	0.00	0.23	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.59	0.14
83	0.00	0.00	0.23	0.30	0.33	0.37	0.24	3.56	0.52
84	0.00	0.00	0.00	0.00	0.11	0.23	0.10	1.29	0.38

116/85	0.00	0.00	0.00	0.00	0.26	0.21	0.16	0.00	0.00
109/119/87/86/125/115	0.44	0.00	0.50	0.00	0.00	0.00	0.00	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.52	0.67	0.51	0.57	0.88	0.77	0.41	5.17	1.32
91	0.00	0.00	0.00	0.00	0.00	0.10	0.07	0.82	0.00
92	0.00	0.00	0.00	0.00	0.15	0.13	0.06	1.25	0.00
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.00	0.00	0.62	0.39	0.54	0.63	0.33	3.64	1.03
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.58	0.00	0.37	0.00	0.41	0.30	0.30	4.37	0.47
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.00	0.00	0.00	0.00	0.09	0.00	0.00	1.10	0.09
108/124	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.55	0.05
110	0.79	0.89	0.74	0.58	0.83	1.03	0.77	15.94	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.27	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00	0.00
118	0.76	0.75	0.71	0.00	0.93	0.81	0.42	7.56	0.97
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00
126	0.00	0.00	0.00	0.00	0.00	0.15	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	1.15	2.38	2.43	2.48	2.31	2.01	2.70	20.48	1.72
130	0.00	0.00	0.00	0.00	0.00	0.13	0.12	1.21	0.06
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.00	0.00	0.36	0.00	0.37	0.48	0.43	4.50	0.39
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.05
134	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.00
151/135	0.00	0.00	0.32	0.46	0.25	0.36	0.46	2.61	0.29
136	0.00	0.00	0.00	0.00	0.10	0.14	0.08	0.72	0.14
137	0.00	0.00	0.00	0.00	0.00	0.09	0.00	1.17	0.07
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.32	0.00

141	0.00	0.00	0.00	0.00	0.00	0.26	0.23	1.67	0.23
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.60	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.00	0.00	0.30	0.00	0.21	0.21	0.39	2.17	0.21
149/147	0.00	1.43	1.22	0.95	0.77	1.08	1.10	8.43	0.87
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	0.70	2.09	1.94	2.07	1.43	1.38	1.56	10.96	1.15
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.00	0.00	0.00	0.00	0.17	0.19	0.16	1.91	0.15
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.00	0.00	0.00	0.00	0.00	0.14	0.23	1.21	0.05
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.10	0.00	0.08	0.00	0.09
169	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
170	0.00	0.84	0.86	1.02	0.40	0.35	0.83	1.99	0.25
173/171	0.00	0.00	0.00	0.00	0.08	0.13	0.23	0.68	0.08
172	0.00	0.00	0.00	0.00	0.00	0.10	0.13	0.29	0.00
174	0.00	0.00	0.73	0.57	0.27	0.34	0.87	1.61	0.25
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.20	0.00
177	0.00	0.00	0.44	0.44	0.19	0.24	0.78	1.11	0.15
178	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.34	0.00
179	0.00	0.00	0.23	0.00	0.09	0.13	0.37	0.61	0.11
180/193	0.42	1.47	1.68	1.87	0.61	0.81	1.81	3.55	0.54
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.34	0.37	0.14	0.18	0.45	0.82	0.14
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	0.00	0.00	0.90	1.05	0.40	0.57	1.32	1.82	0.34
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00
190	0.00	0.00	0.00	0.47	0.07	0.10	0.13	0.35	0.06

191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.00	0.00	0.64	0.56	0.14	0.13	0.41	0.56	0.09
195	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.24	0.00
196	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.00	0.00	0.30	0.20	0.14	0.10	0.30	0.46	0.08
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.00	0.00	0.00	0.00	0.10	0.00	0.18	0.22	0.04
203	0.00	0.00	0.35	0.60	0.00	0.00	0.34	0.55	0.00
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.00	0.00	0.00	0.00	0.30	0.15	0.49	1.02	0.21
207	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.00
208	0.00	0.00	0.00	0.00	0.14	0.00	0.20	0.40	0.11
209	0.00	0.00	0.33	0.00	10.20	0.00	9.62	14.49	0.65
Total	8.44	10.52	17.06	14.95	25.56	15.71	30.63	140.95	16.32

Sample ID →	**B27**	**B23**	**F33**	**B28**	**G9**	**G20**	**G8**	**G10**	**G11**
14	12.34	12.59	11.83	11.15	11.48	11.06	8.19	7.82	8.25
44/65/47	17.74	17.93	16.14	15.61	15.20	15.34	6.48	7.13	6.82
166/128	14.39	14.73	13.65	13.43	13.15	12.54	10.58	11.61	10.68
204	22.75	22.28	18.96	19.75	19.16	18.57	14.70	18.98	14.29
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.05	0.06	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.04	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.04	0.05	0.06	0.05	0.03	0.05	0.00	0.00	0.00
16	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.04	0.00	0.00	0.02	0.00	0.00	0.00
30/18	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.11	0.18	0.16	0.17	0.11	0.00	0.00	0.00	0.00
21/33	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00

22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.17	0.16	0.14	0.08	0.00	0.00	0.00	0.00
32	0.00	0.03	0.03	0.02	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	0.00	0.19	0.00	0.20	0.00	0.00	0.00	0.00	0.00
53/50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.44	1.18	0.52	0.63	0.45	0.30	0.00	0.26	0.35
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.10	0.14	0.14	0.00	0.09	0.06	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61/70/76/74	0.50	1.01	0.56	0.00	0.46	0.26	0.00	0.21	0.24
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.09	0.12	0.11	0.18	0.09	0.00	0.00	0.00	0.00
66	0.17	0.32	0.27	0.00	0.16	0.09	0.00	0.20	0.12
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.16	0.00	0.10	0.00	0.00	0.00	0.00	0.00
83	0.37	0.43	0.34	0.39	0.63	0.18	0.21	0.29	0.57
84	0.00	0.41	0.21	0.26	0.21	0.08	0.00	0.15	0.24
116/85	0.29	0.36	0.30	0.28	0.18	0.00	0.24	0.24	0.30
109/119/87/86/125/115	0.00	0.00	0.00	0.81	1.10	0.34	0.36	0.00	0.75
88	0.00	0.18	0.10	0.13	0.16	0.00	0.00	0.18	0.18
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.85	1.25	0.89	0.70	1.40	0.45	0.55	0.70	0.94
91	0.00	0.16	0.09	0.11	0.14	0.00	0.00	0.10	0.10
92	0.14	0.21	0.15	0.13	0.27	0.07	0.17	0.15	0.13
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.44	1.11	0.61	0.66	0.79	0.25	0.33	0.87	1.00
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	1.00	0.29	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.66	0.58	0.53	0.46	0.96	0.25	0.64	0.34	0.74
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.19	0.00	0.13	0.06	0.18	0.07	0.07	0.10	0.00
108/124	0.06	0.06	0.06	0.05	0.11	0.00	0.00	0.00	0.09
110	0.89	1.42	1.14	1.11	1.68	0.46	0.92	2.17	2.51
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.00	0.00	0.00	0.17	0.11	0.11	0.16	0.16	0.21
118	1.07	1.24	1.06	0.75	1.98	0.49	1.13	0.76	1.61
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00
126	0.00	0.12	0.00	0.11	0.22	0.07	0.00	0.10	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	4.42	2.08	2.95	1.22	0.00	1.11	3.58	3.50	4.69
130	0.12	0.10	0.12	0.09	0.29	0.06	0.20	0.16	0.18
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.39	0.55	0.44	0.32	0.97	0.12	0.46	1.16	1.10
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

134	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151/135	0.70	0.29	0.45	0.15	0.00	0.13	0.41	0.71	0.81
136	0.00	0.10	0.12	0.09	0.19	0.00	0.00	0.24	0.19
137	0.09	0.10	0.08	0.00	0.18	0.04	0.47	0.54	0.46
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	0.62	0.12	0.33	0.07	0.00	0.06	0.47	0.33	0.44
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.64	0.18	0.38	0.17	0.00	0.11	0.50	0.54	0.55
149/147	1.34	0.82	1.09	0.64	2.16	0.33	1.06	2.47	2.67
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	4.99	1.17	2.22	0.67	0.00	0.81	2.78	2.09	2.87
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.24	0.17	0.21	0.08	0.45	0.10	0.28	0.31	0.24
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.24	0.10	0.17	0.00	0.38	0.08	0.27	0.31	0.26
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.15	0.08	0.13	0.00	0.25	0.04	0.16	0.11	0.17
169	0.42	0.00	0.00	0.00	0.06	0.00	0.08	0.00	0.07
170	1.82	0.26	0.76	0.15	0.86	0.18	0.98	0.85	1.11
173/171	0.54	0.00	0.18	0.07	0.23	0.00	0.21	0.23	0.28
172	0.42	0.00	0.12	0.00	0.17	0.00	0.15	0.20	0.22
174	2.56	0.22	0.61	0.16	0.81	0.10	0.76	0.60	0.77
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.16	0.00	0.06	0.00	0.00	0.00	0.00	0.11	0.11
177	1.75	0.15	0.41	0.16	0.51	0.10	0.41	0.35	0.60
178	0.97	0.00	0.22	0.07	0.17	0.07	0.11	0.16	0.22
179	1.37	0.00	0.25	0.00	0.22	0.00	0.24	0.34	0.28
180/193	5.90	0.52	1.45	0.48	1.78	0.34	1.69	1.61	2.18
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	1.54	0.13	0.34	0.09	0.40	0.09	0.41	0.28	0.36
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.16	0.12	0.00	0.82	0.00	0.84

186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	5.85	0.32	0.97	0.35	0.99	0.00	0.96	0.91	1.08
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00
190	0.44	0.00	0.12	0.00	0.00	0.00	0.19	0.18	0.26
191	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.00	0.09	0.29	0.00	0.32	0.09	0.50	0.38	0.48
195	0.88	0.00	0.11	0.00	0.14	0.00	0.21	0.15	0.20
196	0.72	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.17
197	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00
198/199	1.89	0.10	0.26	0.10	0.28	0.09	0.27	0.21	0.24
200	0.27	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00
201	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	1.01	0.00	0.08	0.00	0.13	0.08	0.10	0.10	0.00
203	1.98	0.00	0.21	0.00	0.24	0.00	0.26	0.28	0.34
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	1.09	0.21	0.34	0.14	0.43	0.45	0.31	0.20	0.80
207	0.12	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00
208	0.29	0.12	0.12	0.00	0.16	0.19	0.00	0.00	0.26
209	0.46	0.38	0.34	0.21	0.49	0.69	0.25	0.00	1.31
Total	53.36	19.48	24.06	13.55	26.12	9.38	24.91	26.64	36.89

Sample ID →	**G13**	**G18**	**G19**	**G5**	**B8**	**B9**	**F1**	**F2**	**F8**
14	8.56	8.37	7.71	8.53	7.78	7.98	7.31	7.40	7.35
44/65/47	6.95	6.93	7.10	7.22	9.41	8.82	93.51	11.56	10.04
166/128	11.26	10.25	10.48	10.52	12.95	12.16	12.51	17.79	12.95
204	15.93	14.02	14.35	14.68	17.98	16.40	18.96	26.22	16.39
1	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.17	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	1.50	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	1.77	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.22	0.00	0.00
8	0.00	0.00	0.00	0.00	0.09	0.00	6.45	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.00	0.00
11	0.00	0.00	0.00	0.00	0.07	0.00	0.16	0.00	0.06
13/12	0.00	0.00	0.00	0.00	0.00	0.00	1.79	0.00	0.00
15	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.11	0.08
16	0.00	0.00	0.00	0.00	0.00	0.00	8.33	0.00	0.00

17	0.00	0.00	0.00	0.00	0.00	0.00	11.53	0.00	0.00
30/18	0.00	0.00	0.00	0.00	0.00	0.00	21.76	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	1.23	0.00	0.00
28/20	0.00	0.00	0.00	0.00	0.00	0.00	111.13	0.61	0.00
21/33	0.00	0.00	0.00	0.00	0.00	0.00	25.75	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	40.48	0.23	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	5.79	0.00	0.00
26/29	0.00	0.00	0.00	0.00	0.05	0.00	13.67	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	2.05	0.00	0.00
31	0.00	0.00	0.00	0.00	0.10	0.00	76.84	0.37	0.00
32	0.00	0.00	0.00	0.00	0.00	0.00	10.23	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	2.61	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00	50.83	0.31	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.00	0.00	0.00	0.00	0.00	43.78	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00	10.87	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	28.63	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	3.94	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	12.24	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	3.90	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	23.46	0.00	0.00
69/49	0.00	0.00	0.00	0.00	0.00	0.00	65.27	0.93	0.68
53/50	0.00	0.00	0.00	0.00	0.00	0.00	7.24	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.29	0.29	0.00	0.44	0.27	0.00	90.17	1.15	1.29
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	8.28	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61/70/76/74	0.00	0.25	0.00	0.48	0.31	0.00	0.00	0.71	0.61
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.00	0.00	0.00	0.11	0.00	54.34	0.44	0.27
66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.22
67	0.00	0.00	0.00	0.00	0.00	0.00	2.86	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00

72	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
83	0.14	0.41	0.12	0.51	0.24	0.00	1.16	0.22	0.91
84	0.00	0.17	0.00	0.23	0.00	0.00	2.63	0.00	0.00
116/85	0.12	0.00	0.00	0.34	0.29	0.00	0.00	0.00	0.31
109/119/87/86/125/115	0.00	0.00	0.27	0.25	0.00	0.30	1.02	0.51	0.00
88	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.36	1.03	0.38	1.22	0.48	0.29	3.29	0.93	1.92
91	0.00	0.00	0.00	0.10	0.00	0.00	4.20	0.00	0.19
92	0.00	0.20	0.00	0.25	0.00	0.00	0.99	0.00	0.33
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.70	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.00	0.00
95	0.40	0.63	0.26	1.01	0.37	0.00	22.81	1.01	1.51
96	0.00	0.00	0.00	0.00	0.00	0.00	0.67	0.00	0.00
97	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.87	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	2.25	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.37	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.14	0.00	0.26	0.73	0.49	0.00	0.61	0.63	1.37
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.00	0.00	0.00	0.12	0.11	0.00	0.00	0.00	0.18
108/124	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00
110	0.00	0.47	0.47	1.72	0.97	0.76	1.54	1.29	2.63
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.08	0.24	0.00	0.23	0.09	0.00	0.00	0.00	0.00
118	0.50	1.24	0.43	1.64	1.03	0.65	1.47	1.09	2.69
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	0.00	0.12	0.00	0.20	0.00	0.00	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

138/163/129	1.34	2.50	1.02	4.47	2.73	1.95	2.21	3.36	5.39
130	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.31
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.26	0.41	0.00	0.72	0.43	0.00	0.49	0.81	1.14
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
151/135	0.21	0.51	0.00	0.53	0.00	0.37	0.50	0.76	0.89
136	0.11	0.13	0.00	0.15	0.00	0.00	0.00	0.24	0.25
137	0.00	0.45	0.00	0.46	0.00	0.00	0.00	0.00	0.27
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	0.00	0.22	0.00	0.39	0.25	0.00	0.00	0.29	0.58
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.19	0.31	0.00	0.40	0.25	0.00	0.00	0.37	0.52
149/147	0.69	1.15	0.51	1.81	1.01	0.77	1.44	1.82	2.30
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	0.90	1.62	0.79	3.38	1.68	1.01	1.16	2.24	3.30
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.00	0.13	0.00	0.29	0.19	0.00	0.00	0.31	0.56
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.00	0.25	0.00	0.26	0.17	0.00	0.00	0.00	0.35
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.13	0.00	0.17	0.13	0.00	0.00	0.00	0.23
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.28	0.45	0.16	1.12	0.62	0.49	0.47	0.81	0.75
173/171	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
172	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00	0.00
174	0.28	0.21	0.16	0.77	0.33	0.49	0.00	0.64	0.69
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
177	0.19	0.21	0.00	0.56	0.31	0.00	0.00	0.00	0.51
178	0.00	0.00	0.00	0.26	0.00	0.00	0.00	0.00	0.00
179	0.17	0.12	0.00	0.20	0.13	0.00	0.00	0.28	0.28
180/193	0.64	0.64	0.36	2.09	1.02	0.66	0.81	2.20	1.67

181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.14	0.00	0.38	0.27	0.00	0.00	0.57	0.31
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.23	0.17	0.11	0.00	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	0.36	0.41	0.22	1.07	0.66	0.55	0.36	0.93	0.84
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00
190	0.00	0.15	0.00	0.24	0.25	0.00	0.00	0.00	0.00
191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.20	0.16	0.14	0.41	0.35	0.00	0.00	0.70	0.47
195	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.00	0.00
196	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.00
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.10	0.12	0.00	0.28	0.23	0.00	0.00	0.28	0.28
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00
203	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.66	0.38
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.00	0.24	0.25	0.21	0.00	0.83	0.00	0.71	0.52
207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
208	0.00	0.00	0.13	0.00	0.00	0.43	0.00	0.00	0.00
209	0.27	0.36	0.39	0.00	0.44	1.34	0.00	0.00	0.57
Total	8.22	16.31	6.49	32.74	16.55	11.69	803.71	28.82	38.56

Sample ID →	**F16**	**F18**	**F27**	**B2**	**B5**	**B7**	**B13**	**B14**	**B16**
14	7.20	7.14	7.44	10.58	9.14	9.95	10.48	9.83	11.07
44/65/47	9.50	8.77	9.62	12.14	11.17	11.72	11.87	9.45	10.37
166/128	12.45	12.21	14.19	14.11	14.08	18.19	13.34	13.10	15.16
204	16.87	18.21	19.48	25.20	23.47	27.02	25.11	20.42	24.01
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.08	0.00	0.00	0.00	0.00	0.32	0.00	0.00
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.10	0.00	0.00	0.00	0.00	0.00	0.11	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30/18	0.00	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.00	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21/33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.00	0.00	0.00	0.29	0.25	0.00	0.00	0.21	0.24
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00
32	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30
40/71	0.00	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	0.44	0.58	0.35	0.00	0.00	0.43	0.00	0.00	0.00
53/50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.78	1.10	1.24	0.00	0.60	2.34	0.77	0.00	0.55
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61/70/76/74	0.43	0.00	0.50	0.00	0.44	2.13	0.00	0.43	0.00

63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.00	0.36	0.00	0.00	0.00	0.37	0.00	0.00	0.00
66	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.49	0.00	0.00	0.70	0.00	0.00	0.00
83	0.24	0.25	1.09	0.00	0.34	4.01	0.59	0.37	0.30
84	0.00	0.00	0.92	0.00	0.31	1.20	0.00	0.00	0.00
116/85	0.00	0.00	0.69	0.00	0.00	0.43	0.00	0.00	0.00
109/119/87/86/125/115	0.45	0.00	0.00	0.00	0.00	2.35	0.99	1.10	0.00
88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.83	0.66	3.93	0.33	1.27	7.53	1.50	0.81	0.97
91	0.00	0.00	0.49	0.00	0.00	0.79	0.00	0.00	0.00
92	0.00	0.00	0.64	0.00	0.00	1.45	0.00	0.00	0.00
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.60	0.65	3.26	0.25	0.99	3.38	1.15	0.61	0.53
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	4.78	0.00	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	1.87	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.47	0.33	1.60	0.28	0.58	6.73	1.30	0.58	0.58
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.00	0.00	0.00	0.00	0.00	0.95	0.00	0.00	0.00
108/124	0.00	0.00	0.29	0.00	0.00	0.67	0.00	0.00	0.00
110	0.98	0.73	4.50	0.33	2.02	12.04	2.41	1.73	1.11
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.00	0.10	0.61	0.00	0.00	0.38	0.00	0.00	0.00
118	0.94	0.90	3.84	0.63	1.46	12.66	2.85	1.58	1.43
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00	0.00
126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	2.03	1.70	8.23	1.52	4.21	19.54	4.30	2.63	2.04
130	0.00	0.00	0.00	0.00	0.00	1.09	0.00	0.00	0.00
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.42	0.54	2.08	0.00	0.86	3.18	0.91	0.00	0.00
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	0.00	0.00	0.00	0.00	0.00	0.75	0.00	0.00	0.00
151/135	0.00	0.49	1.87	0.00	0.93	2.76	0.92	0.00	0.00
136	0.00	0.00	0.52	0.00	0.38	0.77	0.35	0.00	0.00
137	0.00	0.00	0.37	0.00	0.00	0.76	0.00	0.00	0.00
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	0.00	0.00	1.20	0.00	0.68	2.08	0.00	0.00	0.44
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.60	0.00	0.00	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.00	0.00	0.60	0.00	0.35	2.01	0.00	0.00	0.00
149/147	1.27	0.84	4.46	0.00	2.40	7.03	1.60	1.54	1.38
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	1.16	1.23	5.30	1.14	2.74	12.12	2.81	1.73	1.56
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.00	0.00	0.76	0.00	0.37	1.79	0.57	0.00	0.00
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.00	0.00	0.42	0.00	0.00	0.92	0.00	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	1.02	0.00	0.00	0.00
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.65	0.53	1.79	0.00	1.28	3.14	1.15	0.00	0.00
173/171	0.00	0.00	0.00	0.00	0.00	0.88	0.00	0.00	0.00
172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
174	0.50	0.00	1.39	0.00	1.13	2.68	0.00	0.00	0.00
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

176	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
177	0.00	0.00	1.10	0.00	0.59	1.26	0.00	0.00	0.00
178	0.00	0.00	0.00	0.00	0.00	0.63	0.00	0.00	0.00
179	0.00	0.00	0.71	0.00	0.56	1.05	0.00	0.00	0.00
180/193	1.01	0.91	2.83	0.83	2.76	5.88	1.68	1.58	0.89
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.62	0.00	0.70	1.25	0.00	0.00	0.00
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	0.62	0.49	1.65	0.00	2.02	3.30	0.00	1.09	0.00
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190	0.00	0.00	0.00	0.00	0.42	0.59	0.00	0.00	0.00
191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.00	0.00	0.84	0.00	1.13	2.04	0.00	0.00	0.00
195	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
196	0.00	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.00
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.00	0.00	0.45	0.00	0.78	1.21	0.00	0.57	0.00
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.00	0.00	0.00	0.00	0.40	0.66	0.00	0.00	0.00
203	0.00	0.00	0.00	0.00	0.59	1.36	0.00	0.00	0.00
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.00	1.13	0.00	0.00	1.53	1.18	0.00	1.06	0.00
207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
208	0.00	0.40	0.00	0.00	0.40	0.00	0.00	0.57	0.00
209	0.00	0.52	0.00	0.90	1.69	1.03	1.14	1.47	0.72
Total	13.83	16.34	68.27	6.52	37.17	146.92	27.31	19.78	13.04

Sample ID →	**B17**	**B20**	**B25**	**B32**	**E34**	**F18-1**	**F27-1**	**H2-2**	**H3-1**
14	10.05	10.93	10.44	10.90	11.01	11.00	10.97	12.07	12.46
44/65/47	9.08	9.77	12.74	9.36	13.78	13.85	12.58	14.03	13.12
166/128	12.30	12.93	19.67	13.64	21.03	18.00	17.28	20.43	16.09
204	21.40	22.55	33.09	23.83	35.35	27.83	25.39	35.50	26.56
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.00	0.00	0.11	0.12	0.18	0.00	0.16
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.19	0.17	0.09	0.00	0.14
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	0.08	0.15	0.09	0.00	0.00
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00
30/18	0.00	0.00	0.00	0.00	0.23	0.25	0.33	0.00	0.14
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.00	0.00	0.00	0.00	0.39	0.52	0.56	0.00	0.28
21/33	0.00	0.00	0.00	0.00	0.19	0.28	0.26	0.00	0.00
22	0.00	0.00	0.00	0.00	0.14	0.27	0.23	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.00	0.17	0.21	0.00	0.26	0.21	0.23	0.00	0.30
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.00	0.00	0.00	0.00	0.21	0.47	0.49	0.00	0.20
32	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.43	0.00	0.26	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.00	0.00	0.00	0.00	0.73	0.34	0.00	0.00
41	0.00	0.00	0.00	0.00	0.00	1.09	0.52	0.00	0.00
42	0.84	0.00	0.00	0.00	0.00	0.42	0.30	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	0.61	0.00	0.00	0.00	0.27	0.84	0.71	0.00	0.00
53/50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.79	0.00	0.51	0.00	0.72	2.27	2.96	0.36	1.00
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	0.00	0.25	0.30	0.44	0.00	0.00

57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.00	0.00	0.00	0.00	0.00	0.00	0.25	0.00	0.00
61/70/76/74	0.00	0.00	0.00	0.00	0.61	1.36	2.81	0.75	0.84
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.66	0.00	0.00	0.00	0.17	0.53	0.44	0.00	0.00
66	0.00	0.00	0.00	0.00	0.28	0.58	0.97	0.00	0.30
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.00	0.00	0.00	0.00	0.60	0.72	0.00	0.00
83	0.30	0.26	0.00	0.38	0.37	1.01	2.08	0.30	0.00
84	0.00	0.00	0.00	0.00	0.00	0.67	1.30	0.33	0.64
116/85	0.00	0.00	0.00	0.00	0.36	0.67	1.08	0.00	0.50
109/119/87/86/125/115	0.00	0.00	0.00	0.00	0.00	0.00	1.83	0.00	0.00
88	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	0.50	0.66	0.00	0.54	0.93	2.98	6.60	0.83	1.47
91	0.00	0.00	0.00	0.00	0.00	0.37	0.69	0.00	0.00
92	0.00	0.00	0.00	0.00	0.00	0.50	1.14	0.00	0.34
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.63	0.46	0.00	0.00	0.72	2.67	4.79	0.83	1.04
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	1.04	0.00	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.68	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.40	0.70	0.00	0.81	0.62	1.34	2.84	0.54	0.94
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.00	0.00	0.00	0.00	0.00	0.23	0.72	0.00	0.22
108/124	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00
110	1.09	0.55	0.00	1.04	0.90	3.43	6.47	1.29	0.00
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00	0.00
117	0.27	0.00	0.00	0.00	0.31	0.58	0.00	0.22	0.00
118	0.99	0.95	0.65	1.42	1.15	3.10	6.16	1.06	2.39
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	1.49	1.66	1.61	2.79	1.65	6.26	14.24	1.68	3.68
130	0.00	0.00	0.00	0.00	0.00	0.35	0.82	0.00	0.31
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	0.56	0.00	0.00	0.62	0.38	1.53	3.57	0.50	0.65
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	0.00	0.00	0.00	0.00	0.00	0.00	0.42	0.00	0.00
151/135	0.00	0.00	0.00	0.74	0.21	1.30	3.02	0.29	0.68
136	0.00	0.00	0.00	0.00	0.00	0.52	1.00	0.00	0.00
137	0.00	0.00	0.00	0.00	0.00	0.35	0.67	0.00	0.45
139/140	0.00	0.00	0.00	0.00	0.00	0.00	0.23	0.00	0.00
141	0.00	0.00	0.00	0.00	0.21	1.01	2.23	0.00	0.00
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.00	0.00	0.00	0.00	0.00	0.58	1.33	0.00	0.25
149/147	0.84	0.48	0.45	1.34	0.57	3.38	7.44	0.67	1.38
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	1.07	1.08	0.97	2.58	1.03	3.58	8.89	0.92	2.13
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	0.00	0.00	0.00	0.00	0.15	0.51	1.41	0.00	0.33
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.00	0.00	0.00	0.00	0.23	0.37	1.06	0.00	0.00
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.00	0.00	0.00	0.00	0.33	0.54	0.00	0.00
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

170	0.63	0.00	0.00	0.00	0.34	0.81	2.53	0.39	0.71
173/171	0.00	0.00	0.00	0.00	0.00	0.00	0.82	0.00	0.00
172	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00
174	0.00	0.00	0.00	0.90	0.00	0.85	2.20	0.00	0.36
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.00	0.00	0.00	0.00	0.00	0.00	0.29	0.00	0.00
177	0.00	0.00	0.00	0.00	0.00	0.92	1.47	0.00	0.33
178	0.00	0.00	0.00	0.00	0.00	0.00	0.36	0.00	0.00
179	0.00	0.00	0.00	0.00	0.00	0.26	0.83	0.00	0.00
180/193	0.82	0.00	0.00	1.77	0.50	1.94	4.46	0.50	0.83
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.00	0.00	0.00	0.00	0.52	1.19	0.00	0.00
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.35
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	0.51	0.00	0.00	1.21	0.28	0.95	2.30	0.32	0.41
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190	0.00	0.00	0.00	0.00	0.00	0.24	0.57	0.00	0.00
191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.00	0.00	0.00	0.00	0.00	0.44	0.91	0.00	0.00
195	0.00	0.00	0.00	0.00	0.00	0.00	0.47	0.00	0.00
196	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.00	0.00	0.00	0.00	0.17	0.00	0.60	0.00	0.22
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.00	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.00
203	0.00	0.00	0.00	0.00	0.00	0.00	0.55	0.00	0.00
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.79	0.00	0.00	0.00	0.00	0.00	0.68	0.00	0.59
207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
208	0.00	0.00	0.00	0.00	0.00	0.00	0.21	0.00	0.00
209	1.48	0.00	0.00	1.24	0.22	0.00	0.66	0.00	0.71
Total	16.70	6.98	4.40	19.10	15.83	56.17	119.18	11.80	25.26

Sample ID →	**H4-1**	**H6-1**	**H6-2**	**F10-2**	**F17-1**	**F18-2**	**G13-2**	**H2-3**	**H3-2**
14	11.96	11.33	11.42	16.66	14.66	15.16	14.71	15.27	16.14
44/65/47	12.09	11.41	12.33	13.91	12.71	13.31	12.10	12.62	15.24
166/128	19.71	15.88	16.12	14.04	11.44	13.02	11.93	12.16	16.08

204	23.79	22.71	23.48	28.53	19.48	20.28	22.16	25.51	31.52
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.08	0.09	0.09	0.00	0.00	0.22	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.12	0.13	0.00	0.00	0.16	0.00	0.00	0.00
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.00	0.06	0.11	0.00	0.11	0.18	0.00	0.00	0.00
16	0.00	0.11	0.00	0.00	0.00	0.18	0.00	0.00	0.00
17	0.00	0.12	0.00	0.00	0.00	0.15	0.00	0.00	0.00
30/18	0.00	0.28	0.00	0.21	0.22	0.40	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.22	0.32	0.20	0.17	0.14	0.48	0.16	0.00	0.00
21/33	0.15	0.17	0.13	0.00	0.00	0.20	0.00	0.00	0.00
22	0.00	0.21	0.00	0.00	0.00	0.26	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.26	0.26	0.22	0.32	0.18	0.20	0.16	0.18	0.26
27	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00	0.00
31	0.20	0.38	0.16	0.12	0.19	0.39	0.00	0.00	0.00
32	0.00	0.09	0.00	0.00	0.00	0.10	0.00	0.00	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.30	0.00	0.00	0.00	0.62	0.00	0.00	0.00
41	0.00	0.45	0.00	0.00	0.00	0.83	0.00	0.00	0.00
42	0.00	0.21	0.00	0.00	0.00	0.35	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.34	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	0.63	0.50	0.37	0.40	0.48	0.89	0.00	0.00	0.00
53/50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

51	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00
52	2.62	1.48	1.55	1.50	1.35	2.08	0.61	0.27	0.51
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.26	0.55	0.27	0.00	0.22	0.23	0.00	0.00	0.16
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.30	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61/70/76/74	2.53	2.12	1.34	0.83	0.76	0.86	0.30	0.20	0.56
63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
64	0.43	0.46	0.30	0.00	0.00	0.59	0.00	0.00	0.00
66	0.94	1.04	0.44	0.28	0.41	0.46	0.20	0.00	0.28
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.81	0.29	0.63	0.00	0.00	0.00	0.00	0.00	0.00
83	6.33	1.82	2.14	0.52	0.55	0.52	0.33	0.19	0.47
84	2.16	0.64	0.91	0.32	0.45	0.61	0.35	0.00	0.00
116/85	3.33	1.20	1.24	0.43	0.00	0.28	0.25	0.00	0.41
109/119/87/86/125/115	2.58	0.89	1.37	0.00	0.44	0.50	0.00	0.00	0.23
88	0.00	0.00	0.00	0.00	0.31	0.00	0.00	0.00	0.00
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	13.91	4.13	4.82	1.31	1.58	1.84	1.21	0.00	1.46
91	0.90	0.41	0.58	0.00	0.29	0.24	0.00	0.00	0.00
92	3.06	0.76	1.05	0.29	0.45	0.36	0.23	0.00	0.29
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	6.90	2.53	3.41	1.60	1.53	1.53	1.14	0.40	0.76
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	0.00	2.72	0.00	0.00	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	8.28	2.75	2.81	0.99	0.90	0.77	0.51	0.24	0.91

106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	1.87	0.64	0.67	0.00	0.00	0.00	0.00	0.00	0.19
108/124	0.87	0.22	0.28	0.00	0.00	0.00	0.00	0.00	0.20
110	16.12	5.50	6.81	1.75	2.40	2.14	1.46	0.51	1.47
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.16	0.00
118	17.86	5.10	5.92	1.81	1.69	1.72	1.01	0.58	1.69
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	0.00	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	33.50	11.83	13.94	3.90	4.84	3.32	2.07	0.71	3.45
130	2.43	0.86	0.83	0.31	0.46	0.00	0.00	0.00	0.25
131	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	7.06	2.58	3.39	0.78	1.06	0.81	0.68	0.24	0.69
133	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
134	1.98	0.49	0.58	0.00	0.00	0.00	0.00	0.00	0.00
151/135	5.20	2.49	2.53	0.88	1.20	0.64	0.54	0.16	0.00
136	1.56	0.65	0.78	0.00	0.45	0.25	0.22	0.00	0.00
137	1.44	1.24	0.00	0.46	0.29	0.41	0.00	0.00	0.00
139/140	0.00	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
141	3.55	1.63	1.96	0.48	0.67	0.49	0.21	0.00	0.37
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	0.78	0.29	0.32	0.00	0.00	0.00	0.00	0.12	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	3.56	1.43	1.55	0.38	0.48	0.35	0.26	0.00	0.32
149/147	15.40	6.04	7.05	1.74	3.10	1.89	1.36	0.40	1.32
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	0.00	7.98	8.81	2.51	3.21	2.03	1.50	0.48	0.00
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
158	3.11	1.07	1.18	0.41	0.41	0.32	0.22	0.00	0.34
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	2.12	0.96	1.43	0.32	0.20	0.28	0.00	0.00	0.36
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	1.41	0.53	0.62	0.23	0.26	0.18	0.00	0.00	0.17
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	4.00	2.27	2.79	0.78	1.23	0.75	0.58	0.00	0.58
173/171	1.23	0.69	0.94	0.00	0.43	0.24	0.00	0.00	0.00
172	0.51	0.50	0.46	0.00	0.31	0.00	0.00	0.00	0.00
174	2.76	2.10	2.73	0.59	1.00	0.57	0.52	0.00	0.39
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.30	0.22	0.23	0.00	0.00	0.00	0.00	0.00	0.00
177	1.85	1.30	1.70	0.35	0.84	0.28	0.00	0.00	0.31
178	0.38	0.45	0.48	0.00	0.00	0.00	0.00	0.00	0.00
179	0.75	0.73	0.69	0.00	0.44	0.28	0.00	0.00	0.20
180/193	5.63	4.42	4.82	1.54	2.70	1.31	0.00	0.23	0.77
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	1.61	1.08	1.14	0.41	0.59	0.24	0.25	0.00	0.20
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	2.71	2.45	2.93	0.70	1.15	0.72	0.44	0.17	0.66
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190	0.79	0.48	0.50	0.18	0.28	0.15	0.00	0.00	0.14
191	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.77	0.91	1.29	0.40	0.57	0.31	0.00	0.00	0.28
195	0.39	0.40	0.39	0.00	0.35	0.00	0.00	0.00	0.00
196	0.38	0.52	0.74	0.00	0.40	0.00	0.00	0.00	0.00
197	0.00	0.00	0.43	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.48	0.61	0.77	0.23	0.33	0.15	0.00	0.00	0.16
200	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
202	0.23	0.22	0.26	0.00	0.00	0.00	0.00	0.00	0.00
203	0.57	0.62	0.95	0.39	0.53	0.27	0.00	0.00	0.25
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.00	0.66	0.74	0.41	0.51	0.00	0.38	0.00	0.43
207	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
208	0.00	0.20	0.00	0.00	0.24	0.00	0.00	0.00	0.25
209	0.33	0.50	0.56	0.61	0.47	0.00	0.38	0.00	0.71
Total	204.44	98.08	108.72	31.84	46.55	37.43	17.52	5.23	22.42

Sample ID →	**H4-2**	**H6-3**	**F17-2**	**F27-2**	**G13-1**	**F10-2**	**G12-2**	**H4-2**	**B34**
14	16.00	15.15	11.37	11.26	11.50	8.50	9.31	9.07	12.48
44/65/47	15.33	12.73	18.70	17.67	17.13	9.34	11.19	10.53	13.29
166/128	20.51	15.28	16.03	17.86	14.61	13.91	18.40	19.90	15.41
204	22.93	29.84	24.95	27.97	25.28	20.30	27.95	22.72	25.98
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.09	0.06	0.09	0.00	0.00	0.06	0.00	0.00	0.09
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.07	0.11	0.11	0.08	0.08	0.08	0.07	0.05	0.00
13/12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.11	0.09	0.11	0.04	0.00	0.06	0.08	0.00	0.11
16	0.11	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
17	0.10	0.00	0.14	0.00	0.00	0.00	0.09	0.00	0.12
30/18	0.21	0.00	0.25	0.00	0.00	0.00	0.16	0.00	0.32
19	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00	0.00
28/20	0.28	0.11	0.27	0.00	0.00	0.12	0.18	0.00	0.15
21/33	0.17	0.00	0.14	0.00	0.00	0.00	0.00	0.00	0.00
22	0.15	0.00	0.15	0.00	0.00	0.00	0.10	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
26/29	0.35	0.25	0.32	0.18	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.37	0.11	0.34	0.07	0.00	0.16	0.20	0.17	0.15
32	0.08	0.00	0.09	0.00	0.00	0.00	0.10	0.00	0.09
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	0.00	0.08	0.19	0.00	0.00	0.00	0.00	0.13	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.76	0.00	0.23	0.10	0.00	0.32	0.40	0.32	0.00
41	0.00	0.00	0.39	0.16	0.00	0.54	0.67	0.53	0.00
42	0.00	0.00	0.00	0.00	0.00	0.24	0.19	0.22	0.00

43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
46	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.00
69/49	1.57	0.38	0.39	0.00	0.26	0.79	1.04	1.02	0.21
53/50	0.00	0.00	0.22	0.00	0.00	0.00	0.11	0.00	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.00	0.00
52	8.09	1.87	1.35	0.82	0.70	4.88	5.78	5.41	0.87
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.62	0.31	0.25	0.08	0.18	0.45	0.54	0.59	0.14
57	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.10	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.39	0.00	0.00	0.00	0.00	0.20	0.23	0.20	0.00
61/70/76/74	5.74	1.59	0.76	0.52	0.55	3.63	4.45	4.58	0.75
63	0.00	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00
64	0.91	0.40	0.27	0.08	0.13	0.55	0.66	0.66	0.19
66	1.66	0.57	0.25	0.22	0.23	1.00	1.00	1.19	0.39
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.16	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	2.61	0.60	0.24	0.16	0.14	1.47	2.10	1.96	0.17
83	11.45	2.35	0.63	0.77	0.40	3.38	4.84	8.27	0.49
84	5.75	1.18	0.44	0.35	0.27	3.42	4.57	4.52	0.31
116/85	5.51	1.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00
109/119/87/86/125/115	6.28	1.25	0.00	0.30	0.00	0.00	10.98	0.00	0.00
88	0.00	0.00	0.25	0.29	0.18	1.37	1.95	2.63	0.24
89	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
113/90/101	30.23	5.49	1.59	2.08	1.21	9.95	13.51	20.34	1.36
91	3.16	0.54	0.18	0.21	0.13	0.98	1.40	1.88	0.21
92	5.64	1.10	0.24	0.38	0.19	1.90	2.45	3.73	0.23
100/93	0.00	0.00	0.00	0.00	0.00	0.20	0.00	0.32	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	19.79	3.76	1.86	1.67	1.16	9.76	12.34	14.38	1.18
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	3.32	0.00	0.00	0.00	0.00	2.01

98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	0.00	0.00	0.00	1.89	0.00	8.31	0.00	20.33	1.02
102	0.28	0.00	0.00	0.00	0.00	0.17	0.21	0.27	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	11.73	2.83	0.91	1.12	0.47	4.33	5.79	9.48	0.73
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	2.05	0.66	0.26	0.22	0.00	0.88	1.09	2.13	0.21
108/124	1.43	0.27	0.00	0.10	0.00	0.51	0.66	1.10	0.00
110	31.20	7.48	3.36	3.62	1.88	14.85	20.67	29.73	2.10
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.47	0.13	0.00	0.00	0.00	0.29	0.26	0.40	0.00
117	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
118	26.95	6.19	2.11	2.51	1.16	9.90	13.71	21.92	1.74
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.19	0.00
123	0.50	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
126	0.00	0.00	0.36	0.34	0.21	0.35	0.26	0.60	0.15
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	47.83	13.06	5.70	8.81	2.75	17.03	21.09	41.17	2.81
130	3.13	0.74	0.31	0.52	0.00	1.09	1.38	2.44	0.13
131	0.00	0.00	0.00	0.00	0.00	0.00	0.38	0.47	0.00
132	12.73	2.63	1.45	1.68	0.64	5.17	7.25	10.13	0.53
133	0.64	0.00	0.00	0.00	0.00	0.00	0.22	0.55	0.00
134	2.57	0.41	0.00	0.00	0.00	0.00	1.32	1.27	0.00
151/135	0.00	2.84	1.19	1.78	0.50	2.75	3.65	6.43	0.30
136	3.94	0.89	0.44	0.39	0.22	1.34	1.82	2.66	0.19
137	2.58	0.59	0.62	0.97	0.36	2.25	2.95	5.46	0.28
139/140	0.00	0.25	0.00	0.00	0.00	0.27	0.42	0.58	0.00
141	5.87	1.77	0.00	1.04	0.00	1.82	2.12	4.22	0.25
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
144	1.58	0.28	0.15	0.19	0.10	0.48	0.58	1.05	0.00
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	5.00	1.25	0.55	0.94	0.28	1.27	1.71	3.96	0.27
149/147	26.76	6.82	3.28	4.92	1.52	8.66	10.43	19.91	1.11
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	0.00	8.41	3.76	5.84	1.65	8.37	10.45	22.67	1.67
154	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	3.78	0.00	4.35	5.49	7.33	0.00
158	4.35	1.15	0.52	0.71	0.27	1.67	2.11	3.41	0.30
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.15	0.00
164	2.86	0.68	0.43	0.67	0.25	1.56	2.04	3.78	0.17
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	1.94	0.57	0.27	0.34	0.00	0.68	0.83	1.73	0.14
169	0.00	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00
170	5.16	2.15	1.12	2.26	0.48	2.04	2.28	4.60	0.57
173/171	1.65	0.70	0.36	0.58	0.13	0.51	0.64	1.33	0.18
172	0.98	0.47	0.22	0.43	0.12	0.37	0.24	0.64	0.00
174	3.82	2.31	0.93	1.46	0.41	1.06	1.14	2.47	0.36
175	0.21	0.00	0.00	0.06	0.00	0.00	0.00	0.15	0.00
176	0.51	0.27	0.13	0.17	0.00	0.18	0.16	0.29	0.00
177	2.49	1.35	0.87	1.22	0.26	0.68	0.91	2.02	0.20
178	0.66	0.44	0.33	0.37	0.13	0.21	0.26	0.56	0.00
179	1.18	0.64	0.42	0.58	0.16	0.33	0.42	0.89	0.00
180/193	7.13	4.13	2.80	4.06	1.03	2.97	2.93	5.78	0.67
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	2.35	0.88	0.79	1.24	0.29	0.78	1.10	1.98	0.14
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.00	0.00	0.00	0.52	0.00	0.00	0.00	0.00
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	3.69	2.43	1.43	1.88	0.59	1.01	1.23	2.77	0.37
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.26	0.00	0.00	0.00	0.00	0.00	0.13	0.28	0.00
190	0.84	0.39	0.29	0.40	0.08	0.28	0.35	0.73	0.11
191	0.18	0.10	0.00	0.09	0.00	0.00	0.00	0.13	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.85	0.85	0.62	0.86	0.17	0.42	0.40	0.77	0.00
195	0.35	0.50	0.24	0.40	0.00	0.00	0.21	0.00	0.00
196	0.45	0.39	0.35	0.37	0.00	0.61	0.00	0.34	0.00
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.44	0.45	0.45	0.47	0.17	0.58	0.48	0.76	0.32
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.13	0.11	0.10	0.00	0.00	0.00	0.08	0.00	0.00
202	0.17	0.17	0.17	0.00	0.10	0.00	0.13	0.17	0.00
203	0.72	0.59	0.40	0.57	0.17	0.00	0.46	0.00	0.00
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

206	0.34	0.46	0.59	0.63	0.31	0.43	0.62	0.31	0.42
207	0.00	0.00	0.00	0.08	0.06	0.00	0.07	0.00	0.00
208	0.00	0.19	0.20	0.25	0.12	0.00	0.00	0.00	0.00
209	0.28	0.43	0.63	0.61	0.40	0.00	0.00	0.00	0.00
Total	344.17	103.89	51.05	73.37	23.94	156.28	204.10	325.82	27.39

Sample ID →	**F10**	**G4**	**G23**	**H4**	**E35-R**	**E35-SD**	**F17-R**	**F17-SD**	**F24-R**
14	12.02	12.72	13.30	13.31	9.97	9.98	10.33	11.05	10.68
44/65/47	10.68	14.41	14.67	13.87	13.16	13.76	15.44	14.76	15.72
166/128	7.17	16.13	15.27	20.52	16.86	18.35	23.33	19.09	20.25
204	65.41	25.22	24.39	21.94	30.25	33.24	43.50	33.81	36.17
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.00	0.00	0.10	0.12	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.13	0.13	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.09	0.00	0.00	0.62	0.50	0.05	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.00	0.00	0.00	0.16	0.14	0.06	0.00	0.00
13/12	0.00	0.00	0.00	0.00	0.18	0.10	0.00	0.00	0.00
15	0.00	0.00	0.00	0.00	2.10	1.35	0.11	0.05	0.07
16	0.00	0.00	0.00	0.00	0.47	0.36	0.00	0.00	0.00
17	0.00	0.00	0.00	0.00	0.50	0.33	0.00	0.04	0.00
30/18	0.00	0.00	0.00	0.30	1.24	0.96	0.12	0.14	0.00
19	0.00	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.00
28/20	0.00	0.00	0.00	0.24	5.61	4.43	0.18	0.13	0.11
21/33	0.00	0.00	0.00	0.17	2.10	1.25	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	1.94	1.71	0.00	0.00	0.00
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.38	0.26	0.00	0.00	0.00
26/29	0.00	0.00	0.00	0.00	0.82	0.63	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.10	0.12	0.00	0.00	0.00
31	0.00	0.00	0.00	0.47	5.48	4.65	0.20	0.14	0.11
32	0.00	0.00	0.00	0.00	0.42	0.32	0.00	0.03	0.00
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.13	0.12	0.00	0.00	0.00
36	0.00	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00
37	0.00	0.00	0.00	0.00	5.29	4.45	0.17	0.09	0.11

38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
40/71	0.00	0.00	0.00	0.47	2.55	2.33	0.12	0.17	0.17
41	0.00	0.00	0.00	0.51	0.00	0.00	0.00	0.00	0.00
42	0.00	0.00	0.00	0.37	1.99	1.98	0.15	0.12	0.18
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.00	0.00	0.00	0.00	0.61	0.56	0.17	0.18	0.14
46	0.00	0.00	0.00	0.00	0.00	0.16	0.00	0.00	0.00
48	0.00	0.00	0.00	0.00	1.02	0.93	0.00	0.00	0.09
69/49	0.48	0.21	0.00	1.66	6.34	6.58	0.52	0.33	0.53
53/50	0.00	0.00	0.00	0.00	0.33	0.44	0.09	0.09	0.00
51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.00	1.46	0.30	9.63	8.07	8.51	1.07	1.06	1.16
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.00	0.00	0.00	1.01	6.33	7.29	0.16	0.14	0.18
57	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.57	0.58	0.00	0.08	0.00
60	0.00	0.00	0.00	0.55	4.16	4.67	0.06	0.07	0.00
61/70/76/74	0.74	1.22	0.19	6.03	16.05	17.91	0.75	0.88	0.81
63	0.00	0.00	0.00	0.00	0.56	0.51	0.00	0.00	0.00
64	0.00	0.24	0.00	0.91	4.47	4.57	0.17	0.17	0.36
66	0.00	0.40	0.00	2.08	12.84	14.30	0.34	0.31	0.30
67	0.00	0.00	0.00	0.00	0.17	0.19	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	5.92	0.00	0.00	0.00	0.00	0.00
77	0.00	0.00	0.00	0.00	2.03	2.13	0.00	0.00	0.00
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.00	0.31	0.00	1.79	1.33	1.88	0.16	0.32	0.00
83	0.50	1.31	0.24	9.39	4.91	6.34	1.39	1.30	1.21
84	0.00	0.77	0.00	4.09	1.46	2.19	0.57	0.74	0.49
116/85	0.00	0.63	0.00	0.00	0.00	2.47	0.42	0.29	0.00
109/119/87/86/125/115	0.00	0.00	0.26	0.00	5.17	7.31	1.63	1.82	1.55
88	0.00	0.49	0.00	2.33	1.45	1.75	0.36	0.41	0.33
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	1.01	3.71	0.61	26.73	6.66	8.72	2.21	2.36	2.27
91	0.00	0.42	0.00	1.99	1.11	1.35	0.27	0.31	0.26
92	0.00	0.79	0.00	5.44	1.24	1.59	0.37	0.39	0.53

100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	0.87	3.03	0.51	17.09	4.42	6.42	2.53	2.44	2.18
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	1.20	4.14	0.91	0.00	9.97	11.47	4.08	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.28	0.00	0.00	0.00
99	1.03	2.70	0.49	19.37	0.00	7.77	0.00	1.60	1.48
102	0.00	0.00	0.00	0.00	0.14	0.22	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	0.59	1.39	0.39	9.91	5.19	6.63	1.40	1.28	1.52
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.00	0.40	0.00	2.26	0.75	1.27	0.31	0.28	0.44
108/124	0.00	0.27	0.00	1.28	0.27	0.50	0.00	0.13	0.16
110	1.25	4.31	0.95	33.25	11.39	13.10	4.66	4.26	4.39
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.00	0.00	0.47	0.19	0.35	0.00	0.00	0.00
117	0.00	0.56	0.00	0.00	0.00	0.00	0.42	0.30	0.00
118	1.40	3.81	1.07	25.86	7.88	11.23	3.25	2.91	3.46
120	0.00	0.00	0.00	0.00	0.11	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.00	0.67	0.00	0.00	0.00	0.00
126	0.00	0.25	0.25	0.61	0.35	0.36	0.45	0.37	0.51
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	2.97	7.01	1.66	45.06	6.04	9.33	8.35	6.70	8.18
130	0.00	0.35	0.00	3.01	0.35	0.41	0.39	0.31	0.49
131	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00
132	0.00	1.61	0.21	12.30	1.48	3.32	1.79	1.87	1.53
133	0.00	0.00	0.00	0.46	0.00	0.00	0.00	0.12	0.10
134	0.00	0.00	0.00	2.06	0.00	0.41	0.00	0.00	0.00
151/135	0.00	1.16	0.00	8.78	1.07	1.68	1.34	1.30	1.23
136	0.00	0.47	0.00	3.24	0.47	0.70	0.41	0.51	0.41
137	0.00	0.86	0.00	7.26	0.90	0.00	0.94	0.53	0.96
139/140	0.00	0.00	0.00	0.50	0.00	0.11	0.00	0.00	0.00
141	0.00	0.00	0.00	5.78	0.69	1.30	0.76	1.00	0.00
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
143	0.00	0.00	0.00	0.00	0.00	0.26	0.00	0.00	0.00
144	0.00	0.18	0.00	1.44	0.00	0.22	0.00	0.09	0.12
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	0.00	0.77	0.00	5.13	0.70	1.14	0.96	0.90	1.06
149/147	1.11	3.26	0.43	25.13	3.10	4.62	4.22	3.65	3.16

148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	1.47	5.08	0.96	28.53	3.79	5.16	4.81	4.13	5.42
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	0.00	0.00	0.00	8.28	0.00	4.26	4.92	0.00	4.26
158	0.00	0.65	0.16	3.97	0.43	0.77	0.75	0.57	0.70
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
164	0.00	0.53	0.00	4.43	0.60	0.74	0.63	0.36	0.65
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.00	0.41	0.00	1.52	0.33	0.36	0.30	0.29	0.36
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	0.67	1.16	0.00	6.19	0.84	1.36	1.93	1.65	1.61
173/171	0.00	0.29	0.00	1.52	0.25	0.42	0.35	0.45	0.36
172	0.00	0.23	0.00	1.17	0.20	0.26	0.24	0.26	0.29
174	0.00	0.75	0.00	3.94	0.66	0.42	1.50	1.43	1.06
175	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
176	0.00	0.00	0.00	0.61	0.09	0.10	0.13	0.13	0.07
177	0.00	0.55	0.00	2.66	0.38	0.60	0.96	0.87	0.77
178	0.00	0.00	0.00	1.00	0.12	0.19	0.22	0.28	0.36
179	0.00	0.27	0.00	1.29	0.25	0.39	0.55	0.52	0.50
180/193	1.02	1.75	0.45	8.22	1.56	2.18	3.50	3.09	2.92
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.00	0.41	0.00	2.22	0.32	0.50	0.86	0.89	0.61
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.00	0.56	0.00	0.00	0.35	0.55	0.00	0.00	1.18
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	0.47	1.10	0.00	3.96	1.00	1.07	1.67	1.56	1.69
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
190	0.00	0.20	0.00	1.00	0.17	0.26	0.41	0.33	0.31
191	0.00	0.00	0.00	0.21	0.00	0.00	0.00	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
194	0.00	0.35	0.00	1.02	0.00	0.55	0.86	0.73	1.06
195	0.00	0.21	0.00	0.00	0.15	0.15	0.39	0.31	0.42
196	0.00	0.00	0.00	0.55	0.00	0.25	0.35	0.00	0.44
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	0.00	0.44	0.00	1.14	0.50	0.54	1.12	0.84	1.78

200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.00	0.00	0.00	0.00	0.00	0.06	0.07	0.07	0.00
202	0.00	0.00	0.00	0.22	0.08	0.08	0.20	0.16	0.50
203	0.00	0.35	0.00	0.68	0.27	0.34	0.62	0.53	0.95
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	0.00	0.33	0.00	0.35	0.28	0.30	0.96	0.69	3.19
207	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.09	0.24
208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
209	0.00	0.00	0.00	0.00	0.28	0.31	1.04	0.76	4.40
Total	16.80	64.22	10.05	397.88	188.25	234.67	77.54	63.66	78.43

Sample ID →	**F24-SD**	**F25-RB**	**G12-R**	**H1**	**H2**	**H3**	**H4**	**H5**	**H7**
14	10.93	9.51	9.98	14.87	14.67	13.51	13.98	13.57	13.46
44/65/47	15.79	13.16	13.42	16.25	16.03	15.39	15.03	14.70	15.04
166/128	21.12	18.55	16.76	16.19	15.97	15.33	30.26	16.21	18.08
204	39.52	28.67	43.11	29.06	28.30	28.01	98.82	23.95	26.41
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	0.00	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00
5	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
8	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00	0.00
9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	0.00	0.04	0.00	0.00	0.04	0.07	0.00	0.04	0.05
13/12	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	0.06	0.10	0.04	0.00	0.00	0.04	0.00	0.00	0.05
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
17	0.00	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.05
30/18	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	0.00
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28/20	0.00	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21/33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	0.00	0.00	0.00	0.09	0.00	0.00	0.00	0.00	0.00
24	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03
26/29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
31	0.09	0.17	0.08	0.00	0.00	0.00	0.00	0.00	0.09

32	0.00	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.04
34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
36	0.00	0.00	0.00	0.06	0.00	0.00	0.00	0.00	0.00
37	0.16	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00
38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12
40/71	0.12	0.17	0.07	0.00	0.00	0.06	0.00	0.00	0.00
41	0.00	0.00	0.11	0.00	0.00	0.22	0.00	0.00	0.00
42	0.00	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
45	0.10	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
48	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
69/49	0.32	0.60	0.31	0.00	0.00	0.00	0.00	0.00	0.00
53/50	0.00	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00
52	0.79	1.48	1.23	0.45	0.00	0.46	3.29	0.27	0.80
54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
56	0.11	0.30	0.14	0.34	0.00	0.07	0.14	0.00	0.06
57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59/62/75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
60	0.08	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61/70/76/74	1.09	1.60	1.14	0.30	0.00	0.43	1.34	0.26	0.19
63	0.00	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.00
64	0.20	0.30	0.13	0.00	0.00	0.00	0.00	0.00	0.05
66	0.33	0.58	0.19	0.08	0.00	0.12	0.31	0.05	0.14
67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09
72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
77	0.00	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.08
78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
82	0.26	0.56	0.15	0.00	0.00	0.11	1.83	0.13	0.23
83	1.77	2.38	0.00	0.57	0.17	0.59	16.13	0.25	0.31
84	0.92	0.85	0.90	0.31	0.13	0.24	3.41	0.18	0.38
116/85	0.75	0.82	0.00	0.00	0.10	0.25	4.38	0.00	0.00
109/119/87/86/125/115	0.00	0.00	0.00	0.00	0.00	0.00	16.00	0.00	0.85

88	0.50	0.43	0.51	0.16	0.07	0.13	3.58	0.10	0.28
89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
113/90/101	2.98	4.52	3.37	1.29	0.36	1.37	31.04	0.68	1.88
91	0.39	0.33	0.39	0.12	0.06	0.10	2.75	0.07	0.22
92	0.61	0.94	0.55	0.44	0.00	0.18	5.91	0.05	0.49
100/93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95	2.70	3.21	2.92	0.92	0.41	0.73	14.87	0.60	1.37
96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
97	0.00	0.00	0.00	1.80	0.00	1.60	34.25	0.00	0.00
98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
99	2.17	2.91	2.21	0.00	0.32	1.12	30.65	0.47	0.59
102	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
103	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
104	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
105	2.09	3.25	1.63	0.52	0.20	0.97	14.19	0.54	2.12
106	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
107	0.38	0.81	0.25	0.19	0.00	0.19	4.68	0.14	0.59
108/124	0.18	0.34	0.14	0.09	0.00	0.12	1.68	0.07	0.27
110	4.89	7.38	5.29	1.81	0.60	1.58	38.27	1.36	4.59
111	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
112	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
114	0.00	0.15	0.00	0.00	0.00	0.06	0.46	0.00	0.08
117	0.00	0.00	0.00	0.00	0.11	0.25	4.45	0.00	0.00
118	4.32	7.31	3.85	0.94	0.42	1.80	33.71	1.13	4.46
120	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
121	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
122	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
123	0.00	0.00	0.00	0.17	0.00	0.17	4.17	0.13	0.53
126	0.48	0.50	0.28	0.14	0.00	0.00	0.64	0.10	0.26
127	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
138/163/129	9.78	14.29	5.86	2.52	0.55	2.91	76.28	2.13	10.55
130	0.00	0.71	0.40	0.00	0.00	0.20	4.55	0.12	0.46
131	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
132	1.80	2.95	1.45	0.61	0.19	0.47	15.84	0.54	1.50
133	0.00	0.00	0.00	0.00	0.00	0.00	0.98	0.00	0.15
134	0.00	0.00	0.28	0.00	0.00	0.00	3.89	0.00	0.00
151/135	1.27	2.52	0.95	0.58	0.18	0.50	12.50	0.34	1.54
136	0.47	0.74	0.46	0.24	0.00	0.13	4.00	0.11	0.31
137	1.39	1.81	0.80	0.00	0.00	0.38	10.31	0.27	1.07
139/140	0.00	0.14	0.00	0.00	0.00	0.00	1.01	0.00	0.12
141	0.00	1.96	0.60	0.00	0.00	0.28	10.13	0.00	0.00
142	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

143	0.00	0.00	0.00	0.00	0.00	0.00	2.46	0.00	0.00
144	0.15	0.25	0.12	0.00	0.00	0.00	1.44	0.00	0.14
145	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
146	1.11	1.67	0.70	0.46	0.00	0.39	8.77	0.23	1.06
149/147	4.12	7.03	2.70	1.76	0.09	1.02	36.59	0.76	3.74
148	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
150	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
152	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
153/168	6.19	9.16	3.39	2.18	0.37	2.22	46.64	1.34	6.99
154	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
155	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
156/157	4.69	4.40	4.65	0.00	0.00	0.00	10.15	0.00	0.00
158	0.85	1.20	0.53	0.18	0.07	0.19	5.19	0.19	0.77
159	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
161	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
162	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.00	0.00
164	0.93	1.22	0.54	0.21	0.00	0.25	6.93	0.18	0.72
165	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
167	0.41	0.57	0.27	0.00	0.00	0.11	3.23	0.00	0.48
169	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
170	1.75	2.64	0.78	0.57	0.13	0.55	8.65	0.42	1.66
173/171	0.47	0.79	0.20	0.17	0.00	0.09	2.66	0.11	0.46
172	0.30	0.54	0.12	0.00	0.00	0.00	1.46	0.09	0.22
174	1.22	2.25	0.61	0.43	0.07	0.42	6.19	0.45	1.20
175	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.00	0.00
176	0.10	0.22	0.06	0.00	0.00	0.05	0.52	0.00	0.11
177	0.84	1.53	0.43	0.35	0.00	0.29	4.74	0.20	0.90
178	0.27	0.44	0.15	0.00	0.00	0.00	1.12	0.00	0.33
179	0.49	0.82	0.27	0.24	0.00	0.17	2.28	0.13	0.49
180/193	3.17	5.22	1.34	0.99	0.29	0.95	13.54	0.68	2.91
181	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
182	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
183	0.60	1.17	0.35	0.22	0.00	0.20	3.36	0.00	0.59
184	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
185	0.66	0.00	0.00	0.24	0.00	0.00	3.70	0.00	0.65
186	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
187	1.93	2.71	0.72	0.66	0.21	0.55	7.31	0.40	1.53
188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
189	0.00	0.09	0.00	0.00	0.00	0.00	0.39	0.00	0.06
190	0.29	0.51	0.15	0.15	0.00	0.12	1.95	0.09	0.32
191	0.00	0.07	0.00	0.00	0.00	0.00	0.28	0.00	0.00
192	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

194	0.86	0.00	0.33	0.26	0.00	0.30	2.16	0.22	0.70
195	0.32	0.51	0.15	0.00	0.00	0.00	1.02	0.00	0.00
196	0.30	0.62	0.00	0.00	0.00	0.00	0.95	0.00	0.28
197	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
198/199	1.78	1.82	0.50	0.31	0.16	0.49	2.79	0.30	0.83
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
201	0.09	0.16	0.00	0.00	0.00	0.00	0.15	0.00	0.08
202	0.46	0.00	0.11	0.00	0.00	0.12	0.43	0.09	0.20
203	0.94	1.00	0.28	0.00	0.00	0.27	1.34	0.25	0.53
205	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
206	3.21	1.58	0.72	0.00	0.00	0.48	1.01	0.29	0.69
207	0.16	0.15	0.05	0.00	0.00	0.07	0.00	0.00	0.00
208	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
209	4.30	1.80	0.85	0.00	0.00	0.72	0.58	0.36	0.68
Total	86.51	120.51	58.04	24.34	5.31	27.93	601.88	16.91	66.32

Sample ID →	**H8**	**H9**	**H10**		**Average**	**Sample**	
14	13.92	14.95	13.16				
44/65/47	15.82	16.43	14.49				
166/128	18.13	19.74	15.27				
204	27.27	28.38	22.42	Outfld	Out_stdev	Infld	In_stdev
1	0.00	0.00	0.30	0.00000	0.00000	0.00000	0.00002
2	0.00	0.00	0.08	0.00000	0.00000	0.00000	0.00000
3	0.00	0.00	0.60	0.00152	0.00646	0.00056	0.00339
4	0.00	0.00	4.33	0.00000	0.00000	0.00038	0.00168
5	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00002
6	0.00	0.00	3.34	0.00000	0.00000	0.00012	0.00055
7	0.00	0.00	0.27	0.00000	0.00000	0.00000	0.00003
8	0.00	0.00	8.68	0.00054	0.00150	0.00186	0.00462
9	0.00	0.00	0.78	0.00000	0.00000	0.00001	0.00006
10	0.00	0.00	0.97	0.00000	0.00000	0.00000	0.00002
11	0.14	0.04	2.91	0.00114	0.00225	0.00082	0.00213
13/12	0.00	0.00	8.68	0.00000	0.00000	0.00006	0.00028
15	0.00	0.03	127.18	0.00025	0.00042	0.00163	0.00281
16	0.00	0.00	29.46	0.00008	0.00026	0.00085	0.00273
17	0.00	0.00	90.17	0.00009	0.00030	0.00107	0.00300
30/18	0.00	0.00	100.47	0.00092	0.00204	0.00340	0.00746
19	0.00	0.00	15.90	0.00000	0.00000	0.00004	0.00025
28/20	0.00	0.00	1542.99	0.00143	0.00277	0.00962	0.02501
21/33	0.00	0.00	55.72	0.00026	0.00051	0.00270	0.00692
22	0.00	0.00	413.05	0.00014	0.00050	0.00281	0.00811
23	0.00	0.00	0.00	0.00000	0.00000	0.00004	0.00039

24	0.00	0.00	5.52	0.00000	0.00000	0.00002	0.00009
25	0.00	0.00	49.13	0.00000	0.00000	0.00023	0.00102
26/29	0.00	0.00	113.09	0.00437	0.00878	0.00308	0.00822
27	0.00	0.00	29.26	0.00000	0.00000	0.00011	0.00051
31	0.00	0.00	713.52	0.00126	0.00202	0.00693	0.01553
32	0.00	0.00	123.96	0.00007	0.00023	0.00082	0.00234
34	0.00	0.00	2.14	0.00000	0.00000	0.00000	0.00002
35	0.00	0.00	28.44	0.00000	0.00000	0.00009	0.00049
36	0.00	0.00	7.07	0.00000	0.00000	0.00004	0.00027
37	0.00	0.00	547.84	0.00007	0.00020	0.00379	0.01086
38	0.00	0.00	1.27	0.00000	0.00000	0.00000	0.00001
39	0.00	0.00	2.16	0.00000	0.00000	0.00030	0.00249
40/71	0.00	0.00	483.88	0.00065	0.00103	0.00307	0.00890
41	0.00	0.00	0.00	0.00104	0.00215	0.00098	0.00370
42	0.00	0.00	285.75	0.00029	0.00063	0.00221	0.00766
43	0.00	0.00	42.93	0.00000	0.00000	0.00011	0.00073
45	0.00	0.00	136.55	0.00000	0.00000	0.00129	0.00580
46	0.00	0.00	37.53	0.00000	0.00000	0.00015	0.00077
48	0.00	0.00	237.82	0.00000	0.00000	0.00095	0.00433
69/49	0.00	0.00	697.68	0.00408	0.00691	0.00779	0.01508
53/50	0.00	0.00	90.78	0.00000	0.00000	0.00043	0.00162
51	0.00	0.00	0.00	0.00000	0.00000	0.00053	0.00405
52	0.22	0.45	1249.75	0.02045	0.01509	0.02606	0.02505
54	0.00	0.00	0.75	0.00000	0.00000	0.00000	0.00001
55	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
56	0.12	0.05	22.65	0.00176	0.00209	0.00328	0.00734
57	0.00	0.00	5.70	0.00002	0.00007	0.00002	0.00011
58	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
59/62/75	0.00	0.00	117.87	0.00000	0.00000	0.00049	0.00192
60	0.10	0.00	12.64	0.00047	0.00076	0.00126	0.00465
61/70/76/74	0.38	0.40	526.52	0.02100	0.01605	0.02158	0.02625
63	0.00	0.00	19.69	0.00000	0.00000	0.00029	0.00140
64	0.08	0.00	653.38	0.00132	0.00164	0.00558	0.01221
66	0.30	0.09	234.64	0.00459	0.00417	0.00778	0.01444
67	0.00	0.00	23.40	0.00000	0.00000	0.00009	0.00049
68	0.00	0.00	2.74	0.00000	0.00000	0.00002	0.00016
72	0.00	0.00	6.42	0.00000	0.00000	0.00002	0.00013
73	0.00	0.00	0.00	0.00083	0.00351	0.00019	0.00125
77	0.00	0.00	0.00	0.00003	0.00014	0.00046	0.00227
78	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
79	0.00	0.00	0.00	0.00003	0.00012	0.00001	0.00006
80	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
81	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000

82	0.00	0.00	0.00	0.00294	0.00309	0.00177	0.00301
83	0.30	1.07	6.46	0.02239	0.00971	0.01663	0.00953
84	0.19	0.29	24.46	0.01126	0.00912	0.00625	0.00694
116/85	0.21	0.00	0.00	0.00871	0.00783	0.00413	0.00602
109/119/87/86/125/115	0.46	0.00	3.03	0.00564	0.00812	0.01054	0.01590
88	0.13	0.21	52.87	0.00262	0.00424	0.00219	0.00321
89	0.00	0.00	2.06	0.00000	0.00000	0.00001	0.00005
113/90/101	0.50	2.72	19.11	0.05733	0.01904	0.04610	0.02398
91	0.10	0.16	40.60	0.00357	0.00339	0.00256	0.00280
92	0.05	0.36	6.90	0.00827	0.00580	0.00429	0.00451
100/93	0.00	0.00	0.00	0.00012	0.00036	0.00001	0.00010
94	0.00	0.00	5.19	0.00000	0.00000	0.00001	0.00009
95	0.44	1.41	219.44	0.04357	0.01999	0.03261	0.01834
96	0.00	0.00	6.70	0.00000	0.00000	0.00002	0.00012
97	0.00	0.00	0.00	0.01032	0.02392	0.01448	0.02767
98	0.00	0.00	0.00	0.00000	0.00000	0.00001	0.00013
99	0.00	0.00	12.28	0.02090	0.02738	0.00613	0.01288
102	0.00	0.00	25.41	0.00015	0.00035	0.00010	0.00045
103	0.00	0.00	3.65	0.00000	0.00000	0.00001	0.00007
104	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
105	1.01	1.75	0.79	0.03160	0.01041	0.02563	0.01571
106	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
107	0.22	0.45	0.00	0.00464	0.00351	0.00248	0.00307
108/124	0.00	0.13	0.00	0.00231	0.00234	0.00104	0.00157
110	1.03	3.82	3.96	0.07603	0.02654	0.06142	0.02778
111	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
112	0.34	0.00	0.00	0.00000	0.00000	0.00030	0.00198
114	0.00	0.00	0.00	0.00064	0.00079	0.00011	0.00036
117	0.00	0.00	0.00	0.00472	0.00900	0.00209	0.00432
118	1.20	4.07	2.79	0.07438	0.01727	0.06179	0.03199
120	0.00	0.00	0.00	0.00000	0.00000	0.00001	0.00006
121	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
122	0.00	0.00	0.00	0.00022	0.00044	0.00000	0.00000
123	0.00	0.00	0.00	0.00080	0.00211	0.00042	0.00154
126	0.18	0.12	0.00	0.00037	0.00074	0.00212	0.00380
127	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
138/163/129	3.32	6.19	4.09	0.13771	0.03270	0.12947	0.05833
130	0.21	0.25	0.19	0.00633	0.00433	0.00277	0.00334
131	0.00	0.00	0.00	0.00028	0.00068	0.00002	0.00020
132	0.43	1.04	0.96	0.02766	0.01211	0.01988	0.01277
133	0.00	0.00	0.00	0.00035	0.00069	0.00014	0.00053
134	0.00	0.00	0.00	0.00261	0.00326	0.00032	0.00125
151/135	0.33	0.89	0.89	0.01911	0.01133	0.01497	0.01111

136	0.00	0.32	0.42	0.00431	0.00417	0.00408	0.00397
137	0.00	0.68	0.42	0.00807	0.00749	0.00470	0.00648
139/140	0.00	0.00	0.00	0.00059	0.00089	0.00012	0.00045
141	0.00	0.00	0.00	0.01022	0.00771	0.00639	0.00741
142	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
143	0.00	0.00	0.00	0.00023	0.00096	0.00011	0.00065
144	0.00	0.16	0.13	0.00295	0.00545	0.00043	0.00101
145	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
146	0.34	0.75	0.53	0.00946	0.00635	0.00823	0.00687
149/147	0.80	2.56	2.39	0.06212	0.01865	0.05656	0.02634
148	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
150	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
152	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
153/168	1.95	4.63	2.81	0.07208	0.04661	0.08529	0.03979
154	0.00	0.00	0.00	0.00003	0.00013	0.00000	0.00000
155	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
156/157	0.00	0.00	0.00	0.00489	0.00960	0.00459	0.01537
158	0.24	0.47	0.32	0.00899	0.00535	0.00683	0.00551
159	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
160	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
161	0.00	0.00	0.00	0.00000	0.00000	0.00007	0.00067
162	0.00	0.00	0.00	0.00004	0.00012	0.00000	0.00004
164	0.25	0.46	0.29	0.00707	0.00549	0.00456	0.00468
165	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
167	0.20	0.27	0.12	0.00370	0.00286	0.00274	0.00419
169	0.00	0.00	0.00	0.00000	0.00000	0.00022	0.00099
170	1.24	0.99	0.77	0.01986	0.01006	0.02236	0.01648
173/171	0.17	0.25	0.15	0.00290	0.00298	0.00288	0.00339
172	0.17	0.21	0.00	0.00161	0.00182	0.00167	0.00257
174	0.41	0.70	0.79	0.01149	0.00797	0.01518	0.01270
175	0.00	0.00	0.00	0.00008	0.00018	0.00001	0.00009
176	0.00	0.07	0.06	0.00089	0.00092	0.00045	0.00093
177	0.34	0.57	0.40	0.00733	0.00553	0.00907	0.00846
178	0.00	0.14	0.15	0.00136	0.00167	0.00171	0.00310
179	0.14	0.31	0.28	0.00299	0.00296	0.00459	0.00523
180/193	1.36	1.63	1.67	0.04068	0.02405	0.04700	0.02962
181	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
182	0.00	0.00	0.00	0.00016	0.00066	0.00000	0.00000
183	0.20	0.38	0.49	0.00533	0.00435	0.00664	0.00681
184	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
185	0.00	0.00	0.00	0.00110	0.00346	0.00258	0.00644
186	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
187	0.54	0.96	0.84	0.01958	0.01055	0.02483	0.01969

188	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
189	0.00	0.00	0.00	0.00022	0.00048	0.00009	0.00041
190	0.28	0.17	0.18	0.00251	0.00213	0.00315	0.00465
191	0.00	0.00	0.00	0.00016	0.00029	0.00004	0.00020
192	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
194	0.00	0.37	0.30	0.00457	0.00481	0.00716	0.00866
195	0.17	0.16	0.15	0.00095	0.00161	0.00156	0.00291
196	0.00	0.00	0.00	0.00150	0.00210	0.00104	0.00247
197	0.00	0.00	0.00	0.00022	0.00094	0.00010	0.00090
198/199	0.69	0.61	0.47	0.00580	0.00727	0.00745	0.00817
200	0.00	0.00	0.00	0.00012	0.00051	0.00011	0.00069
201	0.00	0.00	0.00	0.00009	0.00026	0.00015	0.00061
202	0.00	0.13	0.00	0.00078	0.00120	0.00152	0.00299
203	0.28	0.46	0.23	0.00349	0.00435	0.00519	0.00767
205	0.00	0.00	0.00	0.00000	0.00000	0.00000	0.00000
206	0.80	0.52	0.22	0.00543	0.00751	0.01385	0.01935
207	0.00	0.00	0.00	0.00013	0.00056	0.00029	0.00076
208	0.00	0.00	0.00	0.00084	0.00266	0.00379	0.00857
209	0.30	0.44	0.00	0.00682	0.01104	0.03171	0.06081
Total	22.83	45.41	9374.75				

Mouse Inhalation Study

A solution of PCB Aroclor 1242 was analyzed by Ding Fei, and the mass fraction of the solution was used as an input to the vapor pressure calculations shown below. The calculations allow comparison of the mass flow rates from the XAD samples to the predicted rates using the vapor pressure calculations. The XAD sample used was an average from experiments run from August 18, 2008 to August 28, 2008.

The comparison shows that there is no evidence aerosolization of the PCBs through the system to the XAD. If a PCB peak from the solution showed up in the XAD but not the calculated values, there would be evidence of aerosolization of the PCB solution. For example, PCB 83 is 1.1% (by mass) of the liquid mixture, but only 0.08% of the mass fraction captured on the XAD and only 0.04% of the mass fraction calculated with equilibrium vapor pressure. Since both the XAD and the calculated mass flow rates are only 0.04% different, there is evidence that the PCBs are reaching the XAD by volatilization not aerosolization.

The spreadsheet, created for the analysis of the XAD samples, has many other capabilities. The spreadsheet can answer the following questions.

- **What if the solution was different (Aloclor 1254, 1248, 1221, 1242), or if there were different percentages of each of these solutions?**
- **How does the solution compare to the PCB values found in Chicago?**
- **What is the mass flow rate if a solution just PCB 3 (any PCB) is used.**
- **What is the influence of using a different source for the vapor pressure data (Li, Wania, Lei, & Daly, 2003) (Falconer & Bidleman, 1994)**
- **What is the difference between using Frame's Aroclor values and the values determined by the Hornbuckle Group?**

CALCULATIONS

The following is a list of steps taken to estimate the concentration of each PCB congener in an air flow passing over a mixture of pure Aroclor 1242. The concentrations assume equilibrium so the values given should be the highest concentrations observed.

1. **Partial pressure from Raoult's law[4]**

$$P_{pi} = X_i * V_{Pi}$$

P_{Pi}= partial pressure of solution for specific compound "i"

X_i = Molar Fraction of solution for "i"

V_{Pi} = Vapor pressure for pure "i"

2. **Data given for each congener is in mass percent, Molar fraction is needed for Raoult's law.[4]**

$$Mass\ percent \times \frac{1}{100} = Mass\ fraction$$

$$Mass\ fraction\ \left(\frac{g\ of\ i}{g\ of\ Total}\right) \times \frac{1\ mol\ of\ i}{x_i\ (g)} = Mole\ mass\ fraction\ \left(\frac{moles\ of\ i}{g\ of\ total}\right)$$

$$Mole\ mass\ fraction\ \left(\frac{moles\ of\ i}{g\ of\ total}\right) \times \frac{1}{\sum Mole\ mass\ Fraction\ \left(\frac{moles}{g\ of\ total}\right)}$$

$$= Molar\ Fraction \left(\frac{moles\ of\ i}{moles\ of\ Total}\right)$$

3. **Using the equation for Vapor Pressures for each PCB congener from Renee L. Falconer. (Falconer & Bidleman, 1994)**

$$log\ \ p_L^O = \frac{m_L}{T} + b_L$$

$p_L{}^O$ = Vapor Pressure of PCB congener (Pa)(convert to atm)

m_L = slope coefficient from Table 2.

b_L = Intercept coefficient from Table 2

T = Temperature in Kelvin (K)

4. **Adjust the congener profile for collusion by using the Aroclor 1242 and 1254 weight percentages found by Frame (Frame, Cochran, & Boewadt, 1996), The Congener that had the highest weight percentage was used for the partial pressure. Each of the congeners that colluded were assumed to behave the same as the congener with the largest mass percentage.**

5. **Use Equation from Nanqin Li for congeners missing the slope and intercept coefficiants from Renee Falconer's data. (Li, Wania, Lei, & Daly, 2003)**

$$\log\left(\frac{P_L}{Pa}\right) = (0.0206) \times M_m + (0.38) \times n_{ortho-Cl} + (3.4)$$

P_L= Vapor Pressure of pcb congener

M_m = Molecular weight of pcb congener

$N_{ortho\text{-}cl}$ = number of chlorine substitutions in the ortho position

6. **Using Raoult's Law and the data for the partial pressure(from 3 and 5) for each of the congeners**

$$P_{pi} = X_i * V_{Pi}$$

X_i = Molar fraction from #2

V_{pi}= p_L^O from #3

p_{pi} =Partial Pressure of each congener in (Pa)

7. **Find the concentration in the air using the Ideal gas law**

$$\boldsymbol{P \times V = n \times R \times T}$$

P = Partial Pressure (atm)

V = Volume of gas

R = Ideal gas constant

T = Temperature in Kelvin

n = Number of moles

$$n = \frac{mass}{\mathrm{M.W.}\left(\frac{\mathrm{mass}}{\mathrm{moles}}\right)}$$

$$C_{air} = \frac{Mass(g)}{V(L)} = \frac{P(atm) \times M.W.\left(\frac{Mass\ (g)}{Mole}\right)}{R\left(\frac{L \cdot atm}{K\ Moles}\right) \times T(K)}$$

8. **Calculate the Mass Flow rate using the given air flow rate of 11.5 (L/min) and the concentration in the air**

$$C_{air}\left(\frac{Mass\ (g)}{L}\right) \times 11.5\left(\frac{L}{min}\right) = Mass\ flow\ rate\ \left(\frac{mass\ (g)}{min}\right)$$

9. **Calculate the mass Fraction from the total of the mass flow rate and each congener mass flow rate**

$$\boldsymbol{Mass\ Fraction = \frac{Mass\ flow\ rate\ \left(\frac{mass\ (g)}{min}\right)}{\sum Mass\ flow\ rate\ \left(\frac{mass\ (g)}{min}\right)}}$$