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Douglas Tomchuk
Remedial Project Manager
United States Environmental Protection Agency
Emergency & Remedial Response Division
290 Broadway, 20th Floor
New York, New York 10007-1866

Ronald Sloan
New York State Department of Environmental
Conservation
Division of Hazardous Waste Remediation
50 Wolf Road
Albany, New York 12233

Jay Field
National Oceanic and Atmospheric Administration
Bureau of Hazardous Material Remediation
7600 Sand Point Way, N. W.
Seattle, Washington 98115

Re: PCB Analysis of Archived Fish (1990 Collection) Samples

Gentlemen:

In 1990, Law Environmental ("Law") acting for General Electric Company ("GE") collected fish samples from the Upper Hudson River for PCB analysis. A subset of these fish were analyzed and the remainder were placed in cold storage (-20°F). The results of this analysis has been previously reported to you.

The original PCB analysis was performed utilizing a mega bore column which does not yield the same composition details as the DB-1 capillary column method. Additionally, a number of Quality Control/Quality Assurance problems were identified with this analysis. As a result, this data has limited utility for understanding the source of PCBs in fish.

In 1992, GE with the assistance of O'Brien & Gere, collected additional fish which were analyzed by Northeast Analytical Services ("NEA") using a DB-1 column. This date has also been reported to you and is contained in the GE electronic databases. This

data combined with the results from the 1993 NOAA fish analysis which utilized a PCB capillary column has proven useful in understanding the origin of the PCBs in the fish. By evaluating the PCB composition or "fingerprint" in the sediments, water column and fish, it has been found that the PCBs in the fish are primarily controlled by the water column loading and not the buried dechlorinated PCBs within the sediment. This result from the 1992 and 1993 fish is not surprising given the high water column loading of unaltered Aroclor 1242 from the Bakers Falls area beginning in September 1991.

It would be useful to apply this "fingerprinting" technique to fish collected prior to the September 1991 event to determine which source was principally controlling PCB fish levels since it is now believed the Bakers Falls source was active, albeit at a lesser magnitude, prior to September 1991 event. Unfortunately, capillary PCB data on fish prior to the September 1991 data is very limited. Fortunately, the fish remaining from the Fall 1990 collection provide us with an opportunity to generate the capillary column PCB data needed for the "fingerprinting" analysis.

Out of the remaining 1990 fish in the freezer, 92 samples were selected (See Table 2) to represent various reaches and species in the Hudson River. These consisted of both individuals and composites. These were prepared at NEA by grinding and extracting a portion to analyze for PCBs and lipid content. Analysis was conducted by NEA using the same method as employed for the water analysis. This allows quantification of 118 capillary pecks. Additionally, we separately analyzed for PCB Congener 77 (IUPAC). The resulting laboratory reports and chain-of-custody forms are enclosed. Additionally, an updated version of the GE electronic data base containing these analytical results is also enclosed.

We are in the process of evaluating this data. Particularly for its potential - utility in helping us better understand the sources of PCB to fish in the Upper Hudson River. We would welcome the opportunity to meet with you to discuss the data or our findings.

Please let me know if you have questions or wish to meet to discuss the data or "fingerprinting" techniques. Please incorporate this data into the administrative record for the Hudson River project.

Very truly yours,

John Haggard

enclosure

cc: Al D'Bernardo

General Electric Company
Hudson River Project
Law Fish Data Additional Analyses
March 1996

Site Description	Law Reach*	Sample ID	Species	Weight (g)	# of Individuals	Total PCBs (ug/g)	% Lipids
Moreau Pool	0	434	Brown bullhead	196	1	<0.105	1.60
Moreau Pool	0	437	Brown bullhead	913	4	0.0638	1.66
Moreau Pool	0	442	Pumpkinseed	240	1	0.118	2.16
Moreau Pool	0	443	Pumpkinseed	228	1	0.286	2.16
Moreau Pool	0	462	Smallmouth bass	1600	7	0.342	3.10
Moreau Pool	0	463	Smallmouth bass	234	6	0.295	2.24
Moreau Pool	0	464	Smallmouth bass	192	20	0.178	2.43
Thompson Island Pool	1	473	Black crappie	456	1	46.5	4.97
Thompson Island Pool	1	474	White sucker	280	1	6.43	2.44
Thompson Island Pool	1	475	Chain pickerel	78	1	26.9	1.67
Thompson Island Pool	1	476	Chain pickerel	638	1	55.0	1.54
Thompson Island Pool	1	477	Northern pike	426	1	25.5	2.10
Thompson Island Pool	1	482	American eel	628	1	119	20.1
Thompson Island Pool	1	484	Yellow perch	326	1	32.0	1.36
Thompson Island Pool	1	493	Carp	3000	1	20.5	12.0
Thompson Island Pool	1	494**	Carp	6600	1	47.6	12.5
Thompson Island Pool	1	498	Carp	2375	1	42.3	8.95
Thompson Island Pool	1	501	Smallmouth bass	468	1	8.33	1.66
Thompson Island Pool	1	508	Walleye	894	1	25.8	1.12
Thompson Island Pool	1	509	Rock bass	200	1	40.7	3.26
Thompson Island Pool	1	513	Pumpkinseed	590	8	15.3	2.85
Thompson Island Pool	1	514	Walleye	536	1	42.7	0.53
Thompson Island Pool	1	515	Walleye	376	1	63.6	0.58
Thompson Island Pool	1	519	Redbreast sunfish	?	1	34.3	3.9

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March 1996

Site Description	Law Reach*	Sample ID	Species	Weight (g)	# of Individuals	Total PCBs (ug/g)	% Lipids
Thompson Island Pool	1	532	Smallmouth bass	414	1	15.6	0.633
Thompson Island Pool	1	533	Smallmouth bass	466	1	20.0	1.48
Thompson Island Pool	1	543	Yellow perch	334	1	25.8	1.95
Thompson Island Pool	1	546	Yellow perch	182	5	18.9	2.02
Thompson Island Pool	1	553	Redbreasted sunfish	56	2	18.7	2.63
Thompson Island Pool	1	554	Redbreasted sunfish	324	1	13.8	3.12
Thompson Island Pool	1	555	Black crappie	466	1	8.89	1.46
Thompson Island Pool	1	556	Black crappie	506	1	22.4	2.91
Thompson Island Pool	1	558	Pumpkinseed	1096	5	10.1	1.85
Thompson Island Pool	1	566	Rock bass	1394	7	24.2	2.64
Thompson Island Pool	1	567	Rock bass	1138	12	5.70	2.25
Thompson Island Pool	1	574	Largemouth bass	464	1	0.785	0.721
Fort Miller Dam	2	051**	Carp	23000	1	105	24.7
Fort Miller Dam	2	056	White sucker	1550	1	42.4	7.85
Fort Miller Dam	2	057	White sucker	962	1	102	10.8
Fort Miller Dam	2	67	Chain pickerel	990	1	46.9	2.21
Fort Miller Dam	2	85	American eel	1980	3	21.0	11.3
Fort Miller Dam	2	93	Smallmouth bass	504	1	6.33	1.17
Fort Miller Dam	2	94	Smallmouth bass	428	1	4.23	0.97
Fort Miller Dam	2	095	Smallmouth bass	352	1	2.15	0.90
Northumberland Dam	3	198	Largemouth bass	912	1	8.52	0.60
Northumberland Dam	3	204	Largemouth bass	430	1	16.9	1.72
Northumberland Dam	3	206**	Largemouth bass	768	1	6.90	1.02
Northumberland Dam	3	209	American eel	326	1	41.2	23.4
Northumberland Dam	3	217	Yellow bullhead	256	1	15.0	6.9

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Northumberland Dam	3	226	Smallmouth bass	549	1	3.87	0.886
Northumberland Dam	3	234	Smallmouth bass	399	1	23.3	3.00
Northumberland Dam	3	237	Smallmouth bass	460	1	12.7	0.550
Northumberland Dam	3	255	Bluegill	618	4	11.1	5.12
Northumberland Dam	3	256	Bluegill	460	5	8.70	2.91
Northumberland Dam	3	257	Bluegill	178	6	8.03	2.42
Stillwater Dam	4	02	Northern pike	4500	1	6.67	1.32
Stillwater Dam	4	06	Walleye	2200	1	2.27	0.761
Stillwater Dam	4	09	Walleye	1200	1	4.48	1.26
Stillwater Dam	4	13	Walleye	522	1	5.94	0.460
Stillwater Dam	4	023	Smallmouth bass	410	1	4.25	0.968
Stillwater Dam	4	26	Smallmouth bass	360	1	15.6	1.97
Stillwater Dam	4	27	Smallmouth bass	452	1	24.4	3.89
Stillwater Dam	4	36	Northern pike	270	1	7.72	1.94
Stillwater Dam	4	47	Longear sunfish	200	2	32.9	3.07
Mechanicville Dam	5	117	Northern hogsucker	910	1	2.07	3.99
Mechanicville Dam	5	118	Northern hogsucker	710	1	1.17	2.63
Mechanicville Dam	5	119	Northern hogsucker	565	1	4.24	4.05
Mechanicville Dam	5	132**	White crappie	615	1	6.94	3.22
Mechanicville Dam	5	135	White crappie	130	1	2.46	3.33
Mechanicville Dam	5	137	White crappie	911	1	2.13	1.47
Mechanicville Dam	5	159	Smallmouth bass	369	1	12.0	4.28
Mechanicville Dam	5	160	Smallmouth bass	340	1	7.51	5.75
Mechanicville Dam	5	163	Smallmouth bass	540	1	4.53	1.67
Mechanicville Dam	5	185	Minnows	370	160	4.38	4.33

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Site Description	Law Reach*	Sample ID	Species	Weight (g)	# of Individuals	Total PCBs (ug/g)	% Lipids
Lock 2 Dam	6	311	Smallmouth bass	426	1	1.11	0.641
Lock 2 Dam	6	312	Smallmouth bass	410	1	2.98	0.886
Lock 2 Dam	6	315	Smallmouth bass	405	1	2.07	0.885
Lock 2 Dam	6	347	Golden shiner	440	11	5.29	5.15
Waterford Dam	7	382	Brown bullhead	382	1	9.14	4.55
Waterford Dam	7	384	Brown bullhead	304	1	5.61	3.84
Waterford Dam	7	385	Brown bullhead	348	1	5.15	4.31
Waterford Dam	7	390	Smallmouth bass	504	1	3.74	2.27
Waterford Dam	7	391	Smallmouth bass	372	1	2.64	1.35
Waterford Dam	7	400	Smallmouth bass	368	1	11.4	5.41
Waterford Dam	7	410	Sea lamprey	56	1	14.5	4.67
Waterford Dam	7	421	Pumpkinseed	200	1	4.36	1.70
Waterford Dam	7	422	Pumpkinseed	452	8	3.75	2.64
Waterford Dam	7	423	Minnow	884	237	8.66	7.17
Waterford Dam	7	424	Minnow	388	9	6.01	3.48
Troy Dam	8	605**	White sucker	494	1	13.7	9.12
Troy Dam	8	607	Smallmouth bass	476	1	2.83	0.926
Troy Dam	8	611	Smallmouth bass	354	1	1.00	1.05

* Reaches are numbered from upstream to downstream (opposite other numbering schemes)
** MS/MSD sample