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May 26, 1999

**3M**

**CERTIFIED MAIL**

Document Processing Center (7407)  
ATTN: Section 8(e) Coordinator  
Office of Pollution Prevention and Toxics  
US Environmental Protection Agency  
401 M Street, SW  
Washington, DC 20460

Re: TSCA 8(e) SUPPLEMENTAL NOTICE ON: Sulfonate-based Fluorochemicals  
Docket Nos. 8EHQ-1180-373; 8EHQ-1180-374; 8EHQ-0381-0394; 8EHQ-0598-373

Dear Sir:

3M Company is submitting this notice to supplement its previous submissions on sulfonyl-based fluorochemicals (FCs). The purpose of this supplemental notice is to summarize recent 3M studies conducted to determine whether perfluorooctanesulfonate (PFOS) ion can be detected in tissue samples from different animal species.<sup>1</sup>

These studies were designed to obtain initial screening data on the distribution of PFOS in biota. Samples within each study were extracted and analyzed using high-performance liquid chromatography-tandem mass spectrometry (HPLC-ESMSMS). The analytical methods used in "Study 1" (eagle and albatross) and "Study 2" (eagle) were still being optimized at the time of data collection; the results are understood to be accurate to +/-50%. "Study 3" (wild bird livers study), below was conducted using more refined analytical methods that provide accuracy for PFOS determination to +/-30%. Although all of these studies involve a limited number of samples, we are providing the results so that EPA can place in context existing knowledge regarding the presence of PFOS in different biological receptors.

Study 1: Screening of PFOS Levels in Eagles and Albatross. Five samples of plasma from eagles and albatross were analyzed. Three of the five eagles were less than 250 days old; the age of the remaining two birds are unknown. The eagles were obtained from Northern Minnesota and Michigan; the albatross were obtained from Midway Island in the Pacific. PFOS was detected in each of the five samples of eagle plasma at levels of 30, 34, 77, 31 and 34 ppb. Three out of the five albatross samples did not contain PFOS above the limit of detection (10 ppb). Detectable, but not quantifiable, levels of PFOS were detected in the remaining two samples, both collected from birds under 1 year old. As only a small amount (less than 1ML) of plasma was available for analysis, it was not possible to conduct matrix spike analyses.

<sup>1</sup> These studies also include measurements of other non-PFOS compounds, but these FCs have not been fully quantitated.

**Exhibit  
1588**

State of Minnesota v. 3M Co.,  
Court File No. 27-CV-10-28862

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Data collected in support of this study is of semi-quantitative screening quality with a margin of error estimated to be +/- 50%.

*Study 2: Analysis of Extracts Reported in Eagles.* Extracts from three samples of sea eagle plasma (collected from the Baltic Sea) and seven samples of bald eagle plasma (collected from North America) were analyzed quantitatively for PFOS. The target analyte was detected in all of the eagle plasma samples screened. Levels in sea eagle plasma samples were 125, 93, and 215 ppb; levels in bald eagle plasma were 165, 198, 494, 1047, 226, 371 and 375 ppb. All birds except for the one at 1047 ppb were less than 1 year old.

Data collected in support of this study is of semi-quantitative screening quality with a margin of error estimated to be +/- 50%. Only 2 (250 ppb) PFOS matrix spike samples were extracted and analyzed.

*Study 3: Analysis of Fluorochemicals in Wild Bird Livers.* Sixty liver samples collected from various species of birds were characterized with respect to PFOS. The birds were classified according to species and geographic location. Six species of birds were represented in this study, including Sandhill Cranes, Double-Crested Cormorants, White Pelicans, Brown Pelicans, Great Blue Herons, and Brandt's Cormorants. The birds were found at a variety of sites across the United States including Nebraska, New Mexico, Florida, Arizona, California, Louisiana, and Florida. In general, the cause of death to these birds is unknown. Although only minimal spike recovery studies were conducted, this data was collected using methods that have been fully validated on a related matrix. The data for PFOS is semi-quantitative screening data with a margin of error estimated to be +/-30%.

The following table presents the study results:

#### Semi-quantitative Results of Wild Bird Livers

Sample number	SPECIES	LOCATION	Liver [PFOS] ppb
1	sandhill crane	Kearney, NE	41
2	sandhill crane	Kearney, NE	<LOQ
3	sandhill crane	Kearney, NE	<LOQ
4	sandhill crane	Kearney, NE	<LOQ
5	sandhill crane	Kearney, NE	<LOQ
6	sandhill crane	Cochise Co., AZ	<LOQ
7	sandhill crane	Cochise Co., AZ	<LOQ
8	sandhill crane	Cochise Co., AZ	<LOQ
9	sandhill crane	Cochise Co., AZ	<LOQ
10	sandhill crane	Cochise Co., AZ	<LOQ
11	white pelican	Calipatria, CA	35

Sample number	SPECIES	LOCATION	Liver [PFOS] ppb
12	white pelican	Calipatria, CA	1293
13	white pelican	Calipatria, CA	29
14	white pelican	Calipatria, CA	15
15	white pelican	Calipatria, CA	155
16	brandt's cormorant	San Diego, CA	53
17	brandt's cormorant	San Diego, CA	46
18	brandt's cormorant	San Diego, CA	46
19	brandt's cormorant	San Diego, CA	80
20	brandt's cormorant	San Diego, CA	2055
21	double-crested cormorant	St. Martinville, LA	59
22	double-crested cormorant	St. Martinville, LA	145
23	double-crested cormorant	St. Martinville, LA	333
24	double-crested cormorant	St. Martinville, LA	76
25	double-crested cormorant	St. Martinville, LA	170
26	brown pelican	Miami, FL	106
27	brown pelican	Miami, FL	134
28	brown pelican	Miami, FL	125
29	brown pelican	Miami, FL	159
30	brown pelican	Miami, FL	48
31	sandhill crane	Valenica Co., NM	<LOQ
32	sandhill crane	Valenica Co., NM	<LOQ
33	sandhill crane	Socorro Co., NM	<LOQ
34	sandhill crane	Socorro Co., NM	<LOQ
35	sandhill crane	Valenica Co., NM	<LOQ
36	double-crested cormorant	Naples, FL	212
37	double-crested cormorant	Naples, FL	10
38	double-crested cormorant	Naples, FL	52
39	double-crested cormorant	Naples, FL	100
40	double-crested cormorant	Naples, FL	152
41	brown pelican	Calipatria, CA	16
42	brown pelican	Calipatria, CA	36
43	brown pelican	Calipatria, CA	<LOQ
44	brown pelican	Calipatria, CA	6
45	brown pelican	Calipatria, CA	32
46	great blue heron	St. Martinville, LA	188
47	great blue heron	St. Martinville, LA	59
48	great blue heron	St. Martinville, LA	1061
49	great blue heron	St. Martinville, LA	261
50	great blue heron	St. Martinville, LA	173

Sample number	SPECIES	LOCATION	Liver [PFOS] ppb
51	white pelican	Fallon, NV	141
52	white pelican	Fallon, NV	362
53	white pelican	Fallon, NV	927
54	white pelican	Fallon, NV	133
55	white pelican	Fallon, NV	291
56	brown pelican	Ft. Lauderdale, FL	194
57	brown pelican	Ft. Lauderdale, FL	75
58	brown pelican	Ft. Lauderdale, FL	71
59	brown pelican	Ft. Lauderdale, FL	31
60	brown pelican	Ft. Lauderdale, FL	91

LOQ = Limit of Quantitation (approx. 6 ppb)

3M believes that the above three sets of data are insufficient to draw conclusions with any statistical merit. Therefore, 3M is in the process of implementing a more comprehensive program of sampling and analysis to quantify PFOS levels across a range of species, environmental media and geographic locations. These additional data will provide a fuller basis for characterizing the fate and distribution of PFOS and other FCs in biota and ecosystems. We will keep EPA informed of the progress of these efforts. If you have any questions in the meantime, please contact William Weppner at (651) 733-6374.

Sincerely,



Dr. Charles Reich  
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Specialty Material Markets Group

US Environmental Protection Agency  
May 26, 1999  
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