

AR226-3790



October 25, 2007

VIA UPS

Document Control Office (DCO)
Office of Pollution Prevention and Toxics (OPPT)
US Environmental Protection Agency
EPA East, Room 6428
1201 Constitution Avenue, NW
Washington DC 20460

Attention: Docket No. AR-226 and the PFOA Electronic Docket OPPT-2003-0012

Subject: Fifth and Final Submission of Monitoring Data Pursuant to the 3M LOI dated
March 13, 2003 and PFOA Users LOI dated March 14, 2003

Dear Sir or Madam:

This report is submitted pursuant to the 3M Letter of Intent (LOI) dated March 13, 2003 and the PFOA Users LOI dated March 14, 2003. The report is the fifth and final submission under the Letters of Intent of the results of groundwater and wastewater monitoring at the 3M manufacturing sites at Cottage Grove, MN and Decatur, AL. Perfluorooctanoic acid (PFOA) was previously produced at these sites. In addition to the data tabulated in this submittal, additional surface water, sediment and fish samples were collected from the Tennessee River in December 2006. Final analytical reports for these samples are not yet available. When they are completed, the results will be submitted as an addendum to this annual report.

As noted in the 3M LOI and in the 3M submission pursuant to this LOI, monitoring of wastewater treatment plant effluent and groundwater for the presence of PFOA has been underway at the Decatur and Cottage Grove sites for a number of years. This monitoring was initiated as a result of 3M voluntary commitments and/or plans established through permits with local regulators. Under the 3M LOI, 3M agreed to continue this monitoring in order to assess the trends that are likely to occur as a result of the 3M production phase-out of PFOA, completed at the end of 2002 and the discontinuation of the use of PFOA at the Dyneon fluoropolymer manufacturing facility. Because the Dyneon and former 3M manufacturing operations are located at the same site, it was determined that monitoring would be conducted and reported jointly by 3M and Dyneon.

The description of the monitoring program under the LOIs can be found in our May 7, 2003 letter to Ward Penberthy of EPA, and in our first Submission of Monitoring Data dated August 1, 2003. These two documents have been entered into the AR-226 Docket and the PFOA Electronic Docket 2003 - 0012. Please refer to those two Dockets for background information and a detailed description of the test methodology, sampling plans

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and proposed test schedule for wastewater and groundwater monitoring at the Cottage Grove and Decatur sites.

COTTAGE GROVE, MN SITE MONITORING DATA

Monitoring Results

Groundwater Monitoring

As explained in the previous submittals, 3M selected five groundwater sampling locations for semi-annual PFOA monitoring. The five monitoring points were chosen as representative of the following site conditions. (Please consult the site map attached to the report dated August 1, 2004):

<u>Monitoring Point</u>	<u>Site Condition</u>
MW-7	Upgradient of site industrial activities
MW-4	Central to site industrial activities
PZ-14	Western/downgradient of site industrial activities
MW-101	Eastern/downgradient of site industrial activities
Water supply distribution system	Site-wide ground water from the production wells

Since submittal of the last annual LOI report, the only PFOA monitoring data that has been generated has been for the Water Supply Distribution System location. Additional 2006 sampling events occurred on July 31 and November 7. The results of these monitoring events and previous sampling results for these points are presented in the attached Table 1.

Sampling of the water supply distribution system was substituted for sampling of the individual high-capacity pumping wells because the water that supplies this system is a composite of water drawn from these wells and therefore is representative of groundwater throughout the developed portion of the site. It should be noted that a granular activated carbon (GAC) treatment system was installed at this sample location in late 2004. The results for samples collected on March 12 and June 22, 2005 represent post-treatment water. As expected, PFOA was not detected in these samples at a limit of quantitation of 0.025 ug/L. For subsequent sampling events, inlet water was also collected in order to continue the trend analysis in the water supply distribution system. Results presented for samples collected after June 2005 represent water collected prior to GAC treatment.

Effluent Monitoring

The site has a multi-phased wastewater treatment plant that is used to treat all process wastewaters generated at Cottage Grove. Two of the systems treat inorganic wastewaters and the third is an organic, biological treatment system. All of the process effluent wastewater is treated with activated carbon. The treated process wastewaters from these operations are combined at a single discharge point and then are further combined with non-contact cooling and storm water before being discharged to the Mississippi River.

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Since January 2001, the 3M Cottage Grove plant has conducted PFOA analysis of its effluent. Sampling has been performed monthly beginning in January 2003 in accordance with the requirements of 3M's NPDES permit. This information is reported to the Minnesota Pollution Control Agency in the monthly Discharge Monitoring Reports. Effluent wastewater samples are collected at the plant outfall to the Mississippi River. This is the common discharge point for all of the plant's process wastewaters. All samples are collected as 24-hour composites and duplicate analysis is conducted for each sample.

The monitoring results of the Cottage Grove process wastewater effluent discharged under Minnesota NPDES Permit No. MN000149, Outfall SD 001 are shown in the attached Table 2. The data includes results of all monitoring events in 2006 and from previous years.

As shown in Table 2, PFOA levels have clearly dropped since the original submittals under this LOI program. As mentioned above and in previous meetings and reports, several years ago, 3M installed an activated carbon treatment system to remove certain constituents from the wastewater treatment plant effluent. This system has been optimized and is in full operation. While the system was installed for reasons unrelated to PFOA, this technology has been shown to be effective in removing this substance as well.

DECATUR, AL SITE MONITORING DATA

Monitoring Results

Groundwater Monitoring

As stated in the previous submissions, 3M selected the following wells for groundwater sampling and PFOA analysis going forward (see site map attached to the August 1, 2004 report):

Monitoring Location	Site Condition
Wells 226R & L	Located east of inactive landfill and south of wastewater treatment – monitors background conditions in residuum and shallow limestone groundwater
Wells 220R and L	Located northeast of inactive landfill – monitors predominant flow path of plume in residuum and shallow limestone zones
Well 320L	Located north of inactive landfill – monitors secondary flow path of plume
Wells 327R	Located in the former incinerator area – monitors residuum groundwater near source area
Wells 310R & 317L	Located in the Chemical Plant – monitors dominant groundwater flow pathways in the Chemical Plant

Groundwater samples from the eight monitoring points were collected in November 2006. The PFOA results are presented in the attached Table 3.

As indicated by the data presented in Table 3, there is a wide range of PFOA levels measured in the groundwater beneath the site.

Effluent Monitoring

3M's Decatur, Alabama manufacturing facilities obtain process water from the City of Decatur Utilities and directly from the Tennessee River. In addition, many of the manufacturing operations utilize non-contact cooling water, which is obtained from the Tennessee River. All process wastewaters from the 3M and Dyneon manufacturing operations are treated in the site's wastewater treatment facility. The system contains both physical-chemical and biological treatment. Process wastewaters are mixed with non-contact cooling water prior to discharge to the Tennessee River. The discharge is permitted under Alabama NPDES Permit No. AL0000205. The process wastewater

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discharge and combined process wastewater/non-contact cooling water is designated as Outfall 001A and 001, respectively.

As explained in our May 7, 2003 letter, wastewater sampling at the Decatur site for PFOA analysis has been conducted on a quarterly basis. Samples are collected at Outfall 001, which consists of treated process wastewater and cooling water. The outfall discharges to Baker's Creek, which in turn empties into the Tennessee River. All samples are collected as 24-hour composites and duplicated analysis is conducted for each sample. The specific sampling and analytical protocols were described in 3M's May 7, 2003 letter to EPA.

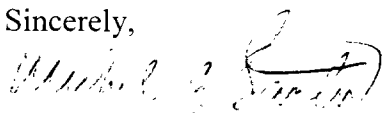
The PFOA monitoring results for the Decatur wastewater effluent discharged under Alabama NPDES Permit No. AL000205, Outfall 001 are shown in the attached Table 4. The data summary includes the historical data and the results from 2003 – 2006 monitoring events. As indicated by these data, effluent concentrations have shown a significant decrease since 2002 when PFOA production and use was phased out.

Surface Water, Sediment and Fish Sampling

As previously noted, surface water, sediment and fish samples were collected from the Tennessee River in December 2006. As soon as final analytical reports are completed for these samples, an addendum to this annual report will be submitted.

In summary, this letter reports results of wastewater and groundwater monitoring at both the Decatur and Cottage Grove sites. This submittal fulfills the commitments of 3M and Dyneon under the March 13, 2003 3M LOI and the March 14, 2003 APFO Users LOI, subject to the submittal of the aforementioned addendum when the December 2006 Tennessee River data is available. If there are any questions, please contact the writer at the address provided below.

Sincerely,



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Attachments

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Table 1. 3M Cottage Grove Groundwater Monitoring Results					
Sample Location	Date Sampled	PFOA (ppb)	PFOA Lab Replicate (ppb)	PFOA Field Duplicate (ppb)	PFOA Avg (ppb)
MW-7	07/11/01	NA	NA	NA	NA
	09/07/01	NA	NA	NA	NA
	10/31/01	NA	NA	NA	NA
	11/12/01	NA	NA	NA	NA
	12/03/02	NA	NA	NA	NA
	06/05/03	0.309	0.307	0.326	0.314
	09/30/03	0.329	0.334	0.327	0.328
	05/19/04	0.367	NA	0.366	0.3665
	09/29/04	0.36	NA	0.37	0.37
	03/16/05	0.237	0.294	0.314	0.282
	06/22/05	0.235	0.225	0.267	0.242
	11/09/05	0.238	0.196	0.251	0.228
MW-101	06/29/06	0.213	0.189	0.237	0.213
	07/11/01	NA	NA	NA	NA
	09/07/01	NA	NA	NA	NA
	10/31/01	NA	NA	NA	NA
	11/12/01	NA	NA	NA	NA
	12/03/02	170	180	172	174
	06/05/03	135	149	125	136
	09/30/03	158	155	154	156
	05/19/04	236	NA	230	233
	09/29/04	163	NA	165	164
	03/12/05	157	147	145	150
	06/22/05	125	129	183	146
Water Supply Distribution System	11/09/05	120	120	121	120
	06/29/06	127	124	126	126
	07/11/01	1.23	1.14	NA	1.18
	09/07/01	NA	NA	NA	NA
	10/31/01	40.6	38.5	41.1	40.1
	11/12/01	11.4	10.8	17.1	13.1
	12/03/02	NA	NA	NA	NA
	06/05/03	28	28.1	27.7	27.9
	09/30/03	5.17	5.35	8.77	6.43
	05/19/04	23.6	NA	23.3	23.4
	09/29/04	12.9	NA	15.8	14.4
	03/12/05	ND	ND	ND	ND
PZ-14	06/22/05	ND	ND	ND	ND
	11/09/05	10.5	8.34	10.5	9.78
	06/29/06	9.72	9.66	9.27	9.55
	07/31/06	7.72	NA	7.40	7.56
	11/07/06	13.1	NA	13.6	13.40
	07/11/01	NA	NA	NA	NA
	09/07/01	6.40	6.77	6.06	6.41
	10/31/01	5.89	4.96	5.25	5.37
	11/12/01	4.66	4.63	4.60	4.63
	12/03/02	NA	NA	NA	NA
	06/05/03	4.80	4.67	4.96	4.81
	09/30/03	4.10	3.98	4.09	4.06
MW-4	05/19/04	4.68	NA	4.83	4.76
	09/29/04	4.40	NA	4.40	4.40
	03/15/05	2.71	2.02	2.40	2.38
	06/22/05	1.60	1.73	1.78	1.70
	11/09/05	1.67	0.96	1.69	1.44
	06/29/06	1.42	1.40	1.37	1.40
	07/11/01	NA	NA	NA	NA
	09/07/01	NA	NA	NA	NA
	10/31/01	5.67	5.93	7.39	6.33
	11/12/01	5.30	5.11	5.45	5.29
	12/03/02	NA	NA	NA	NA
	06/05/03	10.2	10.2	10.1	10.2
MW-4	09/30/03	8.74	9.10	9.12	8.99
	05/19/04	17.0	NA	16.4	16.7
	09/29/04	12.2	NA	13.3	12.8
	03/16/05	10.7	9.47	9.31	9.83
	06/22/05	10.4	9.56	9.65	9.87
	11/09/05	12.3	8.90	NR	10.6
	06/29/06	6.82	6.81	6.89	6.84

Table Notes: ppb: parts per billion (ug/L)
 NA: data not available for sampling period
 ND: not detected at or above 0.025 ug/L
 NR: not reportable due to quality control issues

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Table 2. 3M Cottage Grove Effluent Monitoring Results				
Sample Location	Date Sampled	PFOA (ppb)	PFOA Field Duplicate (ppb)	PFOA Avg (ppb)
SD 001	Jan-Mar 2001	Average of 8 data points		1991
	Sep-Oct 2001	Average of 3 data points		216
	12/12/02			180
	01/15/03	80.1	77.9	79.0
	02/12/03	80.0	78.8	79.4
	03/12/03	74.3	74.7	74.5
	04/23/03	112	109	110.5
	05/15/03	95.0	101	98.0
	06/11/03	18.9	16.4	17.7
	07/16/03	77.4	79.7	78.6
	08/07/03	79.7	85.2	82.5
	09/10/03	53.3	55.5	54.4
	10/08/03	73.9	102	88.0
	11/05/03	60.1	67.8	64.0
	12/10/03	64.7	66.5	65.6
	2003 Average			74.4
	01/14/04	1.60	1.74	1.67
	02/04/04	127	102	114.5
	03/03/04	73.3	75.9	74.6
	04/07/04	8.90	9.50	9.20
	05/05/04	36.8	34.3	35.6
	06/02/04	2.50	2.50	2.50
	07/14/04	81.1	73.4	77.3
	08/04/04	3.00	2.70	2.90
	09/01/04	8.00	7.90	8.00
	10/13/04	1.00	1.00	1.00
	11/11/04	32.8	32.5	32.7
	12/01/04	28.3	29.0	28.7
	2004 Average			32.4
	01/12/05	19.2	20.0	19.6
	02/03/05	22.2	23.8	23.0
	03/10/05	262	264	263
	04/07/05	26.1	24.7	25.4
	05/05/05	4.30	4.30	4.30
	06/09/05	41.9	48.0	45.0
	07/06/05	46.7	42.4	44.6
	08/18/05	32.0	28.4	30.2
	09/15/05	1.20	1.20	1.20
	10/06/05	1.90	1.90	1.90
	11/02/05	66.6	52.5	59.6
	12/07/05	0.90	0.90	0.90
	2005 Average			43.2
	01/04/06	0.83	0.94	0.88
	02/01/06	1.96	2.10	2.03
	03/01/06	0.94	0.96	0.95
	04/05/06	4.20	4.40	4.30
	05/03/06	0.33	0.34	0.33
	06/08/06	0.26	0.25	0.26
	07/05/06	0.34	0.34	0.34
	08/02/06	0.50	0.48	0.49
	09/06/06	2.31	2.63	2.47
	10/05/06	0.54	0.58	0.56
	11/01/06	1.51	1.40	1.46
	12/06/06	1.38	1.47	1.42
	2006 Average			1.29

Table Notes: ppb: parts per billion (ug/L)
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Sample Location	Date Sampled	PFOA (ppb)	PFOA Lab Replicate (ppb)	PFOA Field Duplicate (ppb)	PFOA Avg (ppb)
220L	07/16/03	89.2	88.8	90.2	89.4
	12/xx/03	135	131	142	136
	06/xx/04	110	NA	121	116
	12/16/04	139	NA	129	134
	06/09/05	51.2	55.3	52.3	52.9
	11/17/05	69.7	65.8	67.3	67.6
	06/23/06	90.1	89.0	122	100
	11/10/06	71.8	67.0	76.7	71.8
220R	07/16/03	68.2	68.6	65.8	67.5
	12/xx/03	102	89.0	106	99.0
	06/xx/04	92.3	NA	97.9	95.1
	12/16/04	68.5	NA	65.3	66.9
	06/09/05	40.6	44.1	42.0	42.2
	11/17/05	51.8	50.2	47.7	49.9
	06/23/06	64.4	67.8	61.2	64.5
	11/10/06	56.6	56.4	62.3	58.4
226L	07/16/03	NQ	ND	ND	ND
	12/xx/03	ND	ND	ND	ND
	06/xx/04	ND	NA	ND	ND
	12/16/04	ND	NA	ND	ND
	06/09/05	ND	ND	ND	ND
	11/17/05	ND	ND	ND	ND
	06/23/06	ND	ND	ND	ND
	11/10/06	ND	ND	0.0296	0.0296
226R	07/16/03	10.6	11.0	10.6	10.7
	12/xx/03	11.7	10.6	13.2	11.8
	06/xx/04	9.54	NA	9.85	9.70
	12/16/04	9.84	NA	11.2	10.5
	06/09/05	4.94	5.08	7.92	5.98
	11/17/05	9.20	9.05	8.39	8.88
	06/23/06	7.57	7.63	8.51	7.90
	11/10/06	6.82	5.98	7.58	6.79
310R	03/28/01	1060	1110	1190	1120
	07/16/03	1570	1560	1590	1573
	12/xx/03	2010	2140	2670	2273
	06/xx/04	1580	NA	1940	1760
	12/16/04	1870	NA	1830	1850
	06/09/05	1640	1430	1260	1443
	11/17/05	1440	1280	1280	1333
	06/23/06	1460	1740	1270	1490
	11/10/06	NR	NR	NR	NR
317L	07/16/03	0.940	0.950	0.990	0.960
	12/xx/03	0.521	0.490	0.785	0.599
	06/xx/04	0.776	NA	0.792	0.784
	12/16/04	0.860	NA	0.874	0.867
	06/09/05	0.410	0.763	0.545	0.573
	11/17/05	0.383	0.384	0.387	0.385
	06/23/06	0.514	0.369	0.433	0.439
	11/10/06	0.426	0.396	0.453	0.425
320L	07/16/03	ND	ND	NQ	ND
	12/xx/03	NQ	NQ	NQ	NQ
	06/xx/04	0.463	NA	0.506	0.495
	12/16/04	0.0764	NA	0.0802	0.0783
	06/09/05	0.134	0.158	0.167	0.153
	11/17/05	ND	ND	ND	ND
	06/23/06	0.0406	0.0397	0.0539	0.0447
	11/10/06	0.0662	0.0569	0.0394	0.0542
327R	07/16/03	2280	2600	2280	2386
	12/xx/03	1780	1910	1910	1867
	06/xx/04	1360	NA	1370	1365
	12/16/04	1850	NA	1750	1800
	06/09/05	1080	1030	803	971
	11/17/05	1260	1090	1150	1167
	06/23/06	907	968	791	889
	11/10/06	585	602	558	582

Table Notes: ppb: parts per billion (ug/L)
NA: data not available for sampling period
ND: not detected at or above 0.025 ug/L
NR: not reportable due to quality control issues
NQ: not quantifiable

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Table 4. 3M Decatur Effluent Monitoring Results				
Sample Location	Date Sampled	PFOA (ppb)	PFOA Field Duplicate (ppb)	PFOA Avg (ppb)
Outfall 001	1998	NA	NA	602
	1999	NA	NA	766
	2000	NA	NA	1028
	2001	NA	NA	310
	01/xx/03	NA	NA	58
	05/28/03	89.0	87.5	88.3
	07/21/03	10.1	NA	NA
	11/03/03	27.1	NA	NA
	01/27/04	412	NA	NA
	06/16/04	2.5	NA	NA
	12/20/04	21.5	21.8	21.7
	02/15/05	12.3	12.0	12.2
	05/24/05	8.36	8.77	8.56
	08/23/05	8.08	8.14	8.11
	12/13/05	3.58	3.70	3.64
	02/14/06	2.12	2.12	2.12
	06/27/06	2.52	2.49	2.50
	08/29/06	1.45	1.51	1.48
	12/12/06	1.02	1.06	1.04

Table Notes: ppb: parts per billion (ug/L)
 NA: data not available for sampling period