

3M Specialty Materials

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

Subject: Third 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 third submission under the LOIs 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.

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

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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

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.

PFOA data from the five monitoring points listed above was collected on June 21, 2005 and on June 22, 2005. The results of these most recent monitoring events and previous sampling events for these points are presented in the attached Table 1.

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. At this time, all of the process effluent wastewater is treated with activated carbon. All of 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.

Since January 2000, 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 (DMR). Effluent wastewater samples are collected at the plant outfall on 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 2005 and in previous years.

As shown in Table 2, PFOA levels varied throughout the most recent reporting period of July 2004 to May 2005. As mentioned above and in previous meetings and reports, 3M has installed an activated carbon treatment system to remove certain constituents from the wastewater treatment plant effluent. This system 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

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Groundwater samples from the eight monitoring points were collected on June 15, 2005. 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 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 is being conducted on a quarterly basis. Samples are collected at Outfall 001, which consists of treated process wastewater and non-contact 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 – 2005 monitoring events.

As indicated by these data, there has been some variation in the levels of PFOA in the discharge to the Tennessee River. Effluent concentrations have shown a significant decrease since 2002 as PFOA production was phased out.

Surface Water Sampling

Surface water sampling in the Tennessee River/Bakers Creek was performed at a total of 8 locations, including the 3 LOI locations sampled in 2002. The LOI surface water samples were co-located with sediment sample locations and fish and clam sampling locations.

The three LOI surface water sampling locations were located upstream of the facility at river mile 307.5 (LOC-3; designated as DL3 in the 2004 study), across the river from the facility at river mile 301 (LOC-2; designated as DL2 in the 2004 study), and downstream

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of the facility at the mouth of Fox Creek (river mile approximately 296; LOC-1; designated as DL1 in the 2004 study). Additional information on the sampling rationale, procedures, and locations is contained in the *Phase 2 Work Plan for Sampling Environmental Media* (WESTON, 2004).

Analytical data from the 2002 and 2004 sampling periods are shown in the attached Table 5.

Sediment and Fish Sampling

Analyses of sediment, fish whole body, fish filet and whole body clam tissue samples for PFOA concentrations are currently being performed at the Exygen laboratory. Results of these analyses will be

provided in subsequent Phase 2 PFOA Quarterly Progress Reports upon completion of analyses and the quality assurance and quality control (QA/QC) review of the data packages.

In summary, this letter reports results of wastewater, groundwater, and surface water monitoring at the Decatur site and wastewater and groundwater sampling at the Cottage Grove site. This submittal fulfills the continuing commitments of 3M and Dyneon under the March 13, 2003 3M LOI and the March 14, 2003 APFO Users LOI. If there are any questions, please contact the writer at the address provided below.

Sincerely,



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Safety and Regulatory Affairs
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cc: Mary Dominiak – Room 4410

Attachments

TABLE 1

3M Cottage Grove Groundwater Monitoring Results						
Sample Identification	Date Sampled	PFOA (ppb)	PFOA Lab DS (ppb)	PFOA Field DS (ppb)	PFOA Avg. (ppb)	Std. Deviation (+/-)
MW-7	07/11/01	NA	NA	NA	NA	NC
	09/07/01	NA	NA	NA	NA	NC
	10/31/01	NA	NA	NA	NA	NC
	11/12/01	NA	NA	NA	NA	NC
	12/03/02	NA	NA	NA	NA	NC
	06/05/03	0.309	0.307	0.326	0.314	0.01
	09/30/03	0.329	0.334	0.327	0.328	0.004
	05/19/04	0.367	NA	0.366	0.3665	0.001
	09/29/04	0.36	NA	0.37	0.37	NC
	06/22/05	0.235	0.225	0.267	0.242	0.022
MW-101	07/11/01	NA	NA	NA	NA	NC
	09/07/01	NA	NA	NA	NA	NC
	10/31/01	NA	NA	NA	NA	NC
	11/12/01	NA	NA	NA	NA	NC
	12/03/02	170	180	172	174	5.29
	06/05/03	135	149	125	136	12.06
	09/30/03	158	155	154	155.7	2.08
	05/19/04	236	NA	230	233	4.24
	09/29/04	163	NA	165	164	NC
	06/22/05	125	129	183	146	32.4
Water Supply Distribution System	07/11/01	1.23	1.14	NA	1.185	0.06
	09/07/01	NA	NA	NA	NA	NC
	10/31/01	40.6	38.5	41.1	40.1	1.38
	11/12/01	11.4	10.8	17.1	13.1	3.48
	12/03/02	NA	NA	NA	NA	NC
	06/05/03	28.0	28.1	27.7	27.9	0.21
	09/30/03	5.17	5.35	8.77	6.43	2.03
	05/19/04	23.6	NA	23.3	23.45	0.212
	09/29/04	12.9	NA	15.8	14.4	NC
	06/22/05	ND	ND	ND	ND	NC
PZ-14	07/11/01	NA	NA	NA	NA	NC
	09/07/01	6.40	6.77	6.06	6.41	0.36
	10/31/01	5.89	4.96	5.25	5.37	0.48
	11/12/01	4.66	4.63	4.60	4.63	0.03
	12/03/02	NA	NA	NA	NA	NC
	06/05/03	4.80	4.67	4.96	4.81	0.15
	09/30/03	4.10	3.98	4.09	4.06	0.067
	05/19/04	4.68	NA	4.83	4.76	0.106
	09/29/04	4.4	NA	4.4	4.4	NC
	06/22/05	1.60	1.73	1.78	1.70	0.093

(TABLE 1 continued)

MW-4	07/11/01	NA	NA	NA	NA	NC
	09/07/01	NA	NA	NA	NA	NC
	10/31/01	5.67	5.93	7.39	6.33	0.93
	11/12/01	5.30	5.11	5.45	5.29	0.17
	12/03/02	NA	NA	NA	NA	NC
	06/05/03	10.2	10.2	10.1	10.2	0.06
	09/30/03	8.74	9.10	9.12	8.99	0.214
	05/19/04	17.0	NA	16.4	16.7	0.424
	09/29/04	12.2	NA	13.3	12.8	NC
	06/22/05	10.4	9.56	9.65	9.87	0.461

Table Notes:

ppb: Parts per billion

NA: Data not available for sampling period

ND: Not detected at or above 25 ng/L

NC: Not calculated

Field DS: Field duplicate sample

Lab DS: Laboratory duplicate sample

TABLE 2
Effluent Monitoring Results
3M Cottage Grove, MN

3M Cottage Grove Effluent Monitoring Results PFOA Analysis from SD 001		
	Sample Date	PFOA (ppb)
January-March 2000	Average of 8 Data Points	1991
September-October 2000	Average of 3 Data Points	216
December 2002	12/12/2002	180
January 2003	1/15/2003	80.1
January 2003		77.9
January 2003 Average		79.0
February 2003	2/12/2003	80.0
February 2003		78.8
February 2003 Average		79.4
March 2003	3/12/2003	74.3
March 2003		74.7
March 2003 Average		74.5
April 2003	4/23/2003	112
April 2003		109
April 2003 Average		110.5
May 2003	5/15/2003	95.0
May 2003		101
May 2003 Average		98.0
June 2003	6/11/2003	18.9
June 2003		16.4
June 2003 Average		17.7
July 2003	7/16/2003	77.4
July 2003		79.7
July 2003 Average		78.6
August 2003	8/7/2003	79.7
August 2003		85.2
August 2003 Average		82.5
September 2003	9/10/2003	53.3
September 2003		55.5
September 2003 Average		54.4
October 2003	10/8/2003	73.9
October 2003		102
October 2003 Average		88.0
November 2003	11/5/2003	60.1
November 2003		67.8
November 2003 Average		64.0

(TABLE 2 continued)

December 2003	12/10/2003	64.7
December 2003		66.5
December 2003 Average		65.6
2003 Average		74.3
2003 STD		23.3
January 2004	1/14/2004	1.60
January 2004		1.74
January 2004 Average		1.67
February 2004	2/4/2004	127
February 2004		102
February 2004 Average		114.5
March 2004	3/3/2004	73.3
March 2004		75.9
March 2004 Average		74.6
April 2004	4/7/2004	8.90
April 2004		9.50
April 2004 Average		9.20
May 2004	5/5/2004	36.8
May 2004		34.3
May 2004 Average		35.6
June 2004	6/2/2004	2.50
June 2004		2.50
June 2004 Average		2.50
July 2004	7/14/2004	81.1
July 2004		73.4
July 2004 Average		77.3
August 2004	8/4/2004	3.00
August 2004		2.70
August 2004 Average		2.90
September 2004	9/1/2004	8.00
September 2004		7.90
September 2004 Average		8.00
October 2004	10/13/2004	1.00
October 2004		1.00
October 2004 Average		1.00
November 2004	11/11/2004	32.8
November 2004		32.5
November 2004 Average		32.7
December 2004	12/1/2004	28.3
December 2004		29.0
December 2004 Average		28.7
2004 Average		32.4
2004 STD		37.4

(TABLE 2 continued)

January 2005	1/12/2005	19.2
January 2005		20
January 2005 Average		19.6
February 2005	2/3/2005	22.2
February 2005		23.8
February 2005 Average		23
March 2005	3/10/2005	262
March 2005		264
March 2005 Average		263
April 2005	4/7/2005	26.1
April 2005		24.7
April 2005 Average		25.4
May 2005	5/5/2005	4.30
May 2005		4.30
May 2005 Average		4.30

TABLE 3
Groundwater Monitoring Results
3M Decatur, AL

SAMPLE ID	SAMPLE DATE	PFOA (ppb)	PFOA (ppb) Lab Dup	PFOA (ppb) Field Dup	PFOA (ppb) Average
210R	3/28/01	1060	996	1000	1018
213R	3/28/01	223	231	220	224
216R	3/28/01	75.7	81.8	79.9	79.1
217R	3/28/01	0.091	0.088	0.082	0.087
306R	3/28/01	3280	3690	3330	3433
308R	3/28/01	107	131	117	355
315R	3/28/01	637	635	640	1912
310R	3/28/01	1060	1110	1190	1120
310R	7/16/03	1570	1560	1590	1573
220R	7/16/03	68.2	68.6	65.8	67.5
220L	7/16/03	89.2	88.8	90.2	89.4
226R	7/16/03	10.6	11.0	10.6	10.7
226L	7/16/03	NQ	ND	ND	ND
317L	7/16/03	0.94	0.95	0.99	0.96
310L	7/16/03	ND	ND	NQ	ND
327R	7/16/03	2280	2600	2280	2386
220L	12/03	135	131	142	136
220R	12/03	102	89.0	106	99
226L	12/03	ND	ND	ND	ND
226R	12/03	11.7	10.6	13.2	11.8
310R	12/03	2010	2140	2670	2273
317L	12/03	0.521	0.490	0.785	0.599
320L	12/03	NQ	NQ	NQ	NQ
327R	12/03	1780	1910	1910	1867
220L	6/04	110	--	121	115.5
220R	6/04	92.3	--	97.9	95.1
226L	6/04	ND	--	ND	ND
226R	6/04	9.54	--	9.85	9.70
310R	6/04	1580	--	1940	1760
317L	6/04	0.776	--	0.792	0.784
320L	6/04	0.483	--	0.506	0.495
327R	6/04	1360	--	1370	1365
220L	12/16/04	139	--	129	134
220R	12/16/04	68.5	--	65.3	66.9
226L	12/16/04	ND	--	ND	ND
226R	12/16/04	9.84	--	11.2	10.5
310R	12/16/04	1870	--	1830	1850
317L	12/16/04	0.860	--	0.874	0.867
320L	12/16/04	0.0764	--	0.0802	0.0783
327R	12/16/04	1850	--	1750	1800
220L	6/05	51.2	55.3	52.3	52.9
220R	6/05	40.6	44.1	42.0	42.2
226L	6/05	ND	ND	ND	ND
226R	6/05	4.94	5.08	7.92	5.98
310R	6/05	1640	1430	1260	1443
317L	6/05	0.41	0.763	0.545	0.573
320L	6/05	0.134	0.158	0.167	0.153
327R	6/05	1080	1030	803	971

ND = Not detected.

NQ = Not quantifiable.

-- = No sample.

TABLE 4
Effluent Monitoring Results
3M Decatur, AL

3M Decatur			
Outfall 001 FC Sampling Results			
Sample Date	Results	Duplicate	Average
	(all values are listed as ug/l)		
1998	N/A	N/A	602
1999	N/A	N/A	766
2000	N/A	N/A	1028
2001	N/A	N/A	310
January, 2003	N/A	N/A	58
May 28, 2003	89.0	87.5	88.3
July 21, 2003	10.1	N/A	N/A
November 3, 2003	27.1	N/A	N/A
January 27, 2004	411.5	N/A	N/A
June 16, 2004	2.5	N/A	N/A
December 20, 2004	21.5	21.8	21.7
February 15, 2005	12.9	11.7	12.3
May 24, 2005	8.33	8.38	8.36

TABLE 5
Surface Water Monitoring Results
3M Decatur, AL

3M Decatur Surface Water PFOA Results			
Sample ID	River Mile	Sample Date	PFOA Concentration (ng/mL)
LOC-3	307.5	2002	<0.025
LOC-2	301	2002	<0.025
LOC-1	296	2002	0.20
DL3-SW-LOC001-0-041201	307.5	12/1/2004	<0.025
DL2-SW-LOC001-0-041201	301	12/1/2004	<0.025
DL1-SW-LOC001-0-041202	296	12/2/2004	0.190