



3M Company
St. Paul, Minnesota

**Perfluorooctanoic Acid (PFOA)
Site Related Environmental
Assessment Program**

3M and Dyneon LLC
Decatur, Alabama

Status Report
July 25, 2007 to August 2008





**Perfluorooctanoic Acid (PFOA) Site Related
Environmental Assessment Program
3M Decatur, Alabama Site**

**Status Report
July 25, 2007 to August 2008**

Prepared for

3M Company and Dyneon LLC

By

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1. BACKGROUND

In accordance with the *Phase 2 Work Plan for Sampling Environmental Media* (WESTON, 2004) and the Memorandum of Understanding (MOU, 2004) with EPA, 3M and Dyneon LLC are undertaking a Perfluorooctanoic Acid (PFOA) Site-Related Assessment Program at their Decatur, Alabama facility. A series of 11 Quarterly Status Reports were submitted over the interval between the effective date of the MOU of October 4, 2004 through the completion of Phase 2 monitoring on July 25, 2007. The Data Assessment Report, the Screening Level Human Exposure Assessment Report and the Future Data Needs Report for Phase 2 were submitted on January 15, 2008. These three documents were reviewed by a Peer Consultation Panel formed by Menzie-Cura & Associates followed by a meeting on April 16 and 17, 2008, in Decatur, Alabama, to complete the peer consultation process. The *Report on the Peer Consultation for a PFOA Site-Related Environmental Assessment Program for the 3M Property Located in Decatur, Alabama* (PFOA Peer Consultation Panel Report), dated June 1, 2008, has been issued (Menzie-Cura & Associates, 2008).

On June 18, 2008, EPA acknowledged the receipt of the PFOA Peer Consultation Panel Report and extended the review period to July 25, 2008, in accordance with the provisions of the MOU in a letter from Jim Willis to Michael Santoro of 3M. On July 24, 2008, EPA notified 3M of an additional extension of the review period to August 29, 2008. Upon completion of the EPA review, 3M and EPA will meet to discuss Phase 3 activities, including the scope of the Phase 3 data collection efforts necessary to satisfy the Charge in the MOU and the preparation of the Phase 3 Work Plan.

While the MOU has requirements for submitting quarterly status reports for Phase 2 and Phase 3 of the PFOA Site-Related Assessment Program, the interim period between the completion of Phase 2 activities and the commencement of Phase 3 activities was not addressed in terms of reporting. As discussed in the July 25, 2007 *Quarterly Status Report*, a new Good Laboratory Practice (GLP) Protocol P0003267 was developed for the analysis of environmental media samples collected after the Phase 2 effort. Additional



sampling and analysis of PFOA has been performed under P0003267 on a variety of media since the completion of the analytical component of Phase 2 monitoring on April 25, 2007. The purpose of this activity was to complete the commitments under the Letter of Intent (LOI) and to further characterize the marsh and drainageway areas west of the site. This report provides a summary of field and other activities completed and analytical data finalized between July 25, 2007 and August 2008. These data will be incorporated into the analytical data collected during Phase 3 activities and into the revised screening level human exposure assessment. As required by the MOU, 3M will submit quarterly status reports summarizing the progress of Phase 3 of the PFOA Site-Related Assessment Program after the Phase 3 Work Plan is finalized. For brevity, this report will be referred to as the August 2008 *Status Report*.

2. SUMMARY OF ACTIVITIES

The referenced *Phase 2 Work Plan* and MOU were finalized on October 25, 2004, and field activities were initiated in accordance with the *Phase 2 Work Plan*. This report represents the status report that covers the July 25, 2007 to August 2008 timeframe and includes a description of activities completed under the *Phase 2 Work Plan* since the July 25, 2007 *Quarterly Status Report*, the completion of the *Data Assessment Report*, *Screening Level Human Exposure Assessment Report* and the *Future Data Needs Report*, and the conclusion of the Peer Consultation process. Details are as follows:

- Off-site fish, clam, surface water and sediment sampling and analysis: Fish, clam, surface water and sediment samples collected from locations in the Tennessee River in December, 2006 to complete the Letter of Intent (LOI) commitment and on-site surface water and sediment samples in the Avenue A drainageway have been analyzed for PFOA under the P0003267 Good Laboratory Practices (GLP) study protocol. In addition, off-site sampling of sediments in the off-site marsh and associated drainageway locations upgradient and downgradient of the marsh and in a nearby isolated pond was performed in August 2007 and analysis for PFOA in these samples has been completed. A description of the off-site marsh and drainageway system sediment sampling activities and analytical results are provided in the attached Aquatic Sampling Technical Progress Report.
- Off-site groundwater monitoring well sampling and analysis: Off-site sampling of groundwater at the 600 series wells was performed in September 2007. Additional sampling of the 605R and 605L wells was performed in April 2008. Analysis for PFOA in these samples has been completed and the results are provided in the attached Groundwater Sampling Technical Progress Report.



ATTACHMENT 1

**AQUATIC SAMPLING
TECHNICAL PROGRESS REPORT**

August 2008



AQUATIC SAMPLING TECHNICAL PROGRESS REPORT 3M AND DYNEON DECATUR, ALABAMA

In December 2006, fish, clam, sediment and surface water sampling was performed at six locations (reaches) in the Tennessee River and Bakers Creek to fulfill the Letter of Intent (LOI) and Phase 2 commitments. This included sampling at on-site surface water and sediment locations in the Avenue A drainageway. Complete details of December 2006 sample collection activities were provided in the January 2007 *Quarterly Status Report*. In addition, off-site sampling of sediments in the off-site marsh and associated drainageway locations upgradient and downgradient of the marsh and in a nearby isolated pond was performed in August 2007. PFOA analyses of the 2006 and 2007 samples were performed by the MPI (formerly Exygen) laboratory under the P0003267 Good Laboratory Practices (GLP) protocol.

In addition, samples were collected from the off-site marsh and its surrounding drainageway in August 2007 to expand the characterization of sediment PFOA concentrations in this area.

Tennessee River / Bakers Creek Sediment Results

Sediment sampling in the Tennessee River/Bakers Creek was performed at six locations, including the three LOI locations. Six on-site sediment samples were also collected from the Avenue A drainageway (designated as DAA in this study). The sediment samples were co-located with surface water sample locations.

The three LOI sediment sampling locations were located upstream of the facility at river mile 307.5 (LOC-3; designated as DL3 in this study), across the river from the facility at river mile 301 (LOC-2; designated as DL2 in this study), and downstream of the facility at the mouth of Fox Creek (approximately river mile 296; LOC-1; designated as DL1 in this study). Additional locations that were sampled include a location farther downstream on the Tennessee River at the mouth of Mallard Creek at approximately river mile 293 (designated DMC), the cove and mouth of Bakers Creek in the vicinity of the facility's Wastewater Treatment Plant outfall (designated

DOU) and Bakers Creek upstream of the facility's outfall (designated DBC). Analytical data on sediment PFOA concentrations are tabulated in Table 1 and shown in Figure 1.

Tennessee River / Bakers Creek Surface Water Results

Surface water sampling was performed in conjunction with the December 2006 sediment sampling described above. A single surface water sample was collected at each of the six locations in the Tennessee River and Bakers Creek and at two locations in the Avenue A drainageway. Analytical data on surface water PFOA concentrations are provided in Table 2 and shown in Figure 2. The surface water and sediment laboratory data package for PFOA (Interim Report 1) is provided in an appendix to this attachment.

Tennessee River / Bakers Creek Fish and Clam Results

Largemouth bass (*Micropterus salmoides*) and channel catfish (*Ictalurus punctatus*) were collected using electrofishing and trotlining methods from sampling reaches associated with the sediment and surface water sampling locations described above. Asiatic clams (*Corbicula fluminea*) were collected from each of the six fish sampling reaches by towing a weighted benthic dredge. A tabulation of the results is contained in Tables 3 and 4 and shown in Figure 3. The fish and clam analytical data package for PFOA (Interim Report 3) is provided in an appendix to this attachment.

Off-Site Marsh and Drainageway Sediment Sampling and Results

Sediment samples were collected from the off-site marsh and its surrounding drainageway in August 2007. Figure 4 depicts the sampling locations. Samples from the off-site marsh (locations EP01 through EP14) were collected using a Geoprobe® rig. Sediment samples were collected from the 0 to 1 ft below ground surface (bgs) interval at all sample locations; from the 2.5 to 3 ft bgs interval at locations EP02 through EP05, EP07, EP09 through EP11 and EP13; and from the 4.5 to 5 ft bgs interval at locations EP02, EP03, EP07, EP09 and EP10.

Sediment samples were also collected from drainageways surrounding the off-site marsh. Five samples were collected upstream of the off-site marsh (DU01 through DU05) from the 0 to 1 ft bgs interval. Samples were collected downstream (DS01 and DS02) from the 0 to 1 ft bgs and

2.5 to 3 ft bgs intervals. Two samples (WP01 and WP02) from the 0 to 1 ft bgs interval were also collected from an isolated pond not connected to the marsh and located southwest of the marsh. Sediment samples from the drainageways and southwest pond were collected using a shovel and hand auger, which were decontaminated between sampling locations.

The analytical results for the off-site marsh and surrounding drainageways sediment samples are tabulated in Table 5 and are shown in Figure 4.



**Table 1 Tennessee River and Avenue A Sediment PFOA Concentrations
December 2006**

Sample ID	Sample Area	Sample Location	Average PFOA (ppb, ng/g)
DAA-SD-LOC001-0-061215	DAA	Location 001	3.93
DAA-SD-LOC002-0-061215		Location 002	3.00
DAA-SD-LOC003-0-061215		Location 003	113
DAA-SD-LOC004-0-061215		Location 004	556
DAA-SD-LOC005-0-061215		Location 005	48.3
DAA-SD-LOC006-0-061215		Location 006	44.7
DBC-SD-LOC001-0-061214	DBC	Location 001	5.15
DBC-SD-LOC002-0-061214		Location 002	4.65
DBC-SD-LOC003-0-061214		Location 003	3.71
DL1-SD-LOC001-0-061213	DL1	Location 001	0.536
DL1-SD-LOC002-0-061213		Location 002	0.782
DL1-SD-LOC003-0-061213		Location 003	ND
DL2-SD-LOC001-0-061214	DL2	Location 001	ND
DL2-SD-LOC002-0-061214		Location 002	ND
DL2-SD-LOC003-0-061214		Location 003	ND
DL3-SD-LOC001-0-061214	DL3	Location 001	ND
DL3-SD-LOC002-0-061214		Location 002	ND
DL3-SD-LOC003-0-061214		Location 003	ND
DMC-SD-LOC001-0-061213	DMC	Location 001	0.505
DMC-SD-LOC002-0-061213		Location 002	0.629
DMC-SD-LOC003-0-061213		Location 003	0.703
DOU-SD-LOC001-0-061213	DOU	Location 001	39.3
DOU-SD-LOC002-0-061213		Location 002	8.63
DOU-SD-LOC003-0-061213		Location 003	8.88

Concentrations reported on a dry weight basis.
 ND = Not detected at or above the acceptable LOQ of 0.2 ng/g.



**Table 2 Tennessee River and Avenue A Surface Water PFOA Concentrations
December 2006**

Sample ID	Sample Area	Sample Locations	Average PFOA (ppb, ng/mL)
DL3-SW-LOC001-0-061214	DL3	Location 001	ND
DL2-SW-LOC001-0-061214	DL2	Location 001	ND
DBC-SW-LOC001-0-061214	DBC	Location 001	ND
DOU-SW-LOC001-0-061213	DOU	Location 001	3.54
DL1-SW-LOC001-0-061213	DL1	Location 001	0.0764
DMC-SW-LOC001-0-061213	DMC	Location 001	0.0511
DAA-SW-LOC002-0-061215	DAA	Location 002	1.32
DAA-SW-LOC005-0-061215		Location 005	86.4

ND = Not detected at or above the acceptable LOQ of 0.025 ng/mL.



**Table 3 Fish Fillet and Whole Body PFOA Concentrations
December 2006**

Sample ID	Species	Sample Type	Average PFOA (ppb, ng/g)
<i>Upriver LOC-3 (DL3)</i>			
DL3-F02-IPF001-0-061211	Channel catfish	Fillet	ND
DL3-F02-IPF002-0-061212			ND
DL3-F02-IPF003-0-061212			ND
DL3-F02-IPF004-0-061212			ND
DL3-F02-IPF005-0-061212			ND
DL3-F02-IPW001-0-061212		Whole body	ND
DL3-F02-IPW002-0-061212			ND
DL3-F02-IPW003-0-061212			ND
DL3-F02-IPW004-0-061212			ND
DL3-F02-IPW005-0-061212			ND
DL3-F02-MSF001-0-061207	Largemouth bass	Fillet	0.469
DL3-F02-MSF002-0-061207			ND
DL3-F02-MSF003-0-061207			0.370
DL3-F02-MSF004-0-061207			0.295
DL3-F02-MSF005-0-061207			ND
DL3-F02-MSW001-0-061207		Whole body	ND
DL3-F02-MSW002-0-061207			0.386
DL3-F02-MSW003-0-061207			ND
DL3-F02-MSW004-0-061207			ND
DL3-F02-MSW005-0-061207			ND
<i>Cross River LOC-2 (DL2)</i>			
DL2-F02-IPF001-0-061209	Channel catfish	Fillet	ND
DL2-F02-IPF002-0-061209			ND
DL2-F02-IPF003-0-061209			ND
DL2-F02-IPF004-0-061209			ND
DL2-F02-IPF005-0-061209			ND
DL2-F02-IPW001-0-061209		Whole body	ND
DL2-F02-IPW002-0-061209			ND
DL2-F02-IPW003-0-061209			ND
DL2-F02-IPW004-0-061209			ND
DL2-F02-IPW005-0-061209			ND
-	Largemouth bass	Fillet	-
-			-
-			-
DL2-F02-MSW001-0-061211		Whole body	0.377
DL2-F02-MSW002-0-061211			0.550
-			-
-	-	-	

Fish tissue concentrations reported on a wet weight basis.
 ND = Not detected at or above 0.2 ng/g.
 NR = Not reported due to quality control issues.

**Table 3 Fish Fillet and Whole Body PFOA Concentrations
(cont.)
December 2006**

Sample ID	Species	Sample Type	Average PFOA (ppb, ng/g)
<i>Bakers Creek (DBC)</i>			
DBC-F02-IPF001-0-061211	Channel catfish	Fillet	1.42
DBC-F02-IPF002-0-061211			0.470
DBC-F02-IPF003-0-061211			0.402
DBC-F02-IPF004-0-061211			0.432
DBC-F02-IPF005-0-061211			0.743
DBC-F02-IPW001-0-061211		Whole body	1.14
DBC-F02-IPW002-0-061211			0.640
DBC-F02-IPW003-0-061211			2.01
DBC-F02-IPW004-0-061211			ND
DBC-F02-IPW005-0-061211			1.48
DBC-F02-MSF001-0-061207	Largemouth bass	Fillet	0.919
DBC-F02-MSF002-0-061207			0.354
DBC-F02-MSF003-0-061207			0.207
DBC-F02-MSF004-0-061207			ND
DBC-F02-MSF005-0-061207			0.307
DBC-F02-MSW001-0-061207		Whole body	2.89
DBC-F02-MSW002-0-061207			2.70
DBC-F02-MSW003-0-061207			1.30
DBC-F02-MSW004-0-061207			1.56
DBC-F02-MSW005-0-061207			1.74
<i>Bakers Creek Mouth Near Outfall (DOU)</i>			
DOU-F02-IPF001-0-061212	Channel catfish	Fillet	0.307
DOU-F02-IPF002-0-061212			0.533
DOU-F02-IPF003-0-061212			0.491
DOU-F02-IPF004-0-061212			0.873
DOU-F02-IPF005-0-061211			NR
DOU-F02-IPW001-0-061212		Whole body	0.627
DOU-F02-IPW002-0-061212			0.875
DOU-F02-IPW003-0-061212			1.76
DOU-F02-IPW004-0-061212			ND
DOU-F02-IPW005-0-061212			1.11
DOU-F02-MSF001-0-061209	Largemouth bass	Fillet	1.01
DOU-F02-MSF002-0-061212			0.539
DOU-F02-MSF003-0-061212			0.560
DOU-F02-MSF004-0-061212			0.543
DOU-F02-MSF005-0-061212			0.383
DOU-F02-MSW001-0-061209		Whole body	1.14
DOU-F02-MSW002-0-061212			3.05
DOU-F02-MSW003-0-061212			1.24
DOU-F02-MSW004-0-061212			1.07
DOU-F02-MSW005-0-061212			3.88

Fish tissue concentrations reported on a wet weight basis.
 ND = Not detected at or above 0.2 ng/g.
 NR = Not reported due to quality control issues.



**Table 3 Fish Fillet and Whole Body PFOA Concentrations
(cont.)
December 2006**

Sample ID	Species	Sample Type	Average PFOA (ppb, ng/g)
<i>Fox Creek LOC-1 (DLI)</i>			
DLI-F02-IPF001-0-061212	Channel catfish	Fillet	ND
DLI-F02-IPF002-0-061212			ND
DLI-F02-IPF003-0-061212			ND
DLI-F02-IPF004-0-061212			ND
DLI-F02-IPF005-0-061212			ND
DL1-F02-IPW001-0-061212		Whole body	0.306
DL1-F02-IPW002-0-061212			0.336
DL1-F02-IPW003-0-061212			0.310
DL1-F02-IPW004-0-061215			0.264
DL1-F02-IPW005-0-061215			0.525
DLI-F02-MSF001-0-061209	Largemouth bass	Fillet	ND
DLI-F02-MSF002-0-061209			ND
DLI-F02-MSF003-0-061209			ND
DLI-F02-MSF004-0-061209			0.201
DLI-F02-MSF005-0-061209			ND
DL1-F02-MSW001-0-061209		Whole body	0.339
DL1-F02-MSW002-0-061209			0.399
DL1-F02-MSW003-0-061209			0.405
DL1-F02-MSW004-0-061209			0.331
DL1-F02-MSW005-0-061209			0.490
<i>Downriver Mallard Creek (DMC)</i>			
DMC-F02-IPF001-0-061212	Channel catfish	Fillet	ND
DMC-F02-IPF002-0-061212			0.265
DMC-F02-IPF003-0-061212			0.304
DMC-F02-IPF004-0-061212			ND
DMC-F02-IPF005-0-061212			ND
DMC-F02-IPW001-0-061212		Whole body	ND
DMC-F02-IPW002-0-061212			ND
DMC-F02-IPW003-0-061212			ND
DMC-F02-IPW004-0-061212			ND
DMC-F02-IPW005-0-061212			ND
DMC-F02-MSF001-0-061209	Largemouth bass	Fillet	ND
DMC-F02-MSF002-0-061209			0.254
DMC-F02-MSF003-0-061209			0.221
DMC-F02-MSF004-0-061212			ND
DMC-F02-MSF005-0-061212			ND
DMC-F02-MSW001-0-061209		Whole body	ND
DMC-F02-MSW002-0-061209			0.570
DMC-F02-MSW003-0-061209			0.423
DMC-F02-MSW004-0-061212			0.841
DMC-F02-MSW005-0-061212			0.502

Fish tissue concentrations reported on a wet weight basis.

ND = Not detected at or above 0.2 ng/g.

NR = Not reported due to quality control issues.



Table 4 Asiatic Clam PFOA Concentrations
December 2006

Sample ID	Location	Average PFOA (ppb, ng/g)
DL3-102-CFW001-0-061219	Upriver LOC-3 (DL3)	0.219
DL2-102-CFW001-0-061219	Cross River LOC-2 (DL2)	0.360
DBC-102-CFW001-0-061219	Bakers Creek (DBC)	0.898
DOU-102-CFW001-0-061219	Bakers Creek Mouth Near Outfall (DOU)	0.845
DL1-102-CFW001-0-061219	Fox Creek LOC-1 (DL1)	0.221
DMC-102-CFW001-0-061219	Downriver Mallard Creek (DMC)	ND

Clam tissue concentrations reported on a wet weight basis.
ND = Not detected at or above 0.2 ng/g.



**Table 5 Off-Site Marsh Sediment PFOA Concentrations
August 2007**

Sample ID	Sample Location	Sample Depth (bgs)	Average PFOA (ppb, ng/g)
DAL SD DS01 0 0010	DS01	0 - 1 ft.	32.3
DAL SD DS01 0 0030		2.5 - 3 ft.	29.4
DAL SD DS02 0 0010	DS02	0 - 1 ft.	13.7
DAL SD DS02 0 0030		2.5 - 3 ft.	49.4
DAL SD DU01 0 0010	DU01	0 - 1 ft.	136
DAL SD DU02 0 0010	DU02	0 - 1 ft.	42.0
DAL SD DU03 0 0010	DU03	0 - 1 ft.	19.7
DAL SD DU04 0 0010	DU04	0 - 1 ft.	119
DAL SD DU05 0 0010	DU05	0 - 1 ft.	80.6
DAL SD EP01 0 0010	EP01	0 - 1 ft.	8.47
DAL SD EP02 0 0010	EP02	0 - 1 ft.	68.1
DAL SD EP02 0 0030		2.5 - 3 ft.	116
DAL SD EP02 0 0045		4.5 - 5 ft.	127
DAL SD EP03 0 0010	EP03	0 - 1 ft.	92.0
DAL SD EP03 0 0030		2.5 - 3 ft.	31.3
DAL SD EP03 0 0045		4.5 - 5 ft.	26.8
DAL SD EP04 0 0010	EP04	0 - 1 ft.	250
DAL SD EP04 0 0030		2.5 - 3 ft.	147
DAL SD EP05 0 0010	EP05	0 - 1 ft.	191 (166)
DAL SD EP05 0 0030		2.5 - 3 ft.	101
DAL SD EP06 0 0010	EP06	0 - 1 ft.	93.8
DAL SD EP07 0 0010	EP07	0 - 1 ft.	251
DAL SD EP07 0 0030		2.5 - 3 ft.	139
DAL SD EP07 0 0045		4.5 - 5 ft.	115 (94.9)
DAL SD EP08 0 0010	EP08	0 - 1 ft.	83.7
DAL SD EP09 0 0010	EP09	0 - 1 ft.	125
DAL SD EP09 0 0030		2.5 - 3 ft.	67.1
DAL SD EP09 0 0045		4.5 - 5 ft.	48.7
DAL SD EP10 0 0010	EP10	0 - 1 ft.	167
DAL SD EP10 0 0030		2.5 - 3 ft.	62.1
DAL SD EP10 0 0045		4.5 - 5 ft.	62.0
DAL SD EP11 0 0010	EP11	0 - 1 ft.	191
DAL SD EP11 0 0030		2.5 - 3 ft.	93.5 (112)
DAL SD EP12 0 0010	EP12	0 - 1 ft.	40.7
DAL SD EP13 0 0010	EP13	0 - 1 ft.	169
DAL SD EP13 0 0030		2.5 - 3 ft.	91.2
DAL SD EP14 0 0010	EP14	0 - 1 ft.	208 (194)
DAL SD WP01 0 0010	WP01	0 - 1 ft.	ND
DAL SD WP02 0 0010	WP02	0 - 1 ft.	ND

ND = Not detected at or above Limit of Quantitation.
Values in parentheses are field duplicate results.

Legend:

- Sediment Sampling Locations
- ND Not detected at or above 0.2 ng/g (dry weight)
- 3M Decatur Facility

Note: All concentrations are in ppb (ng/g)

Map Source:
U.S. Department of Agriculture,
Farm Services Agency,
Aerial Photography Field Office;
National Agricultural Imagery
Program (NAIP)
Digital Orthorectified Images (DOQ),
Alabama 2005

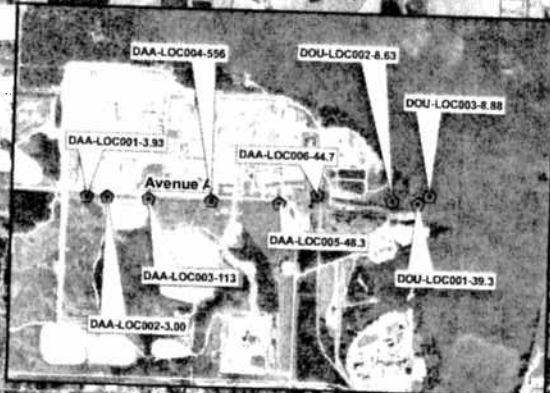
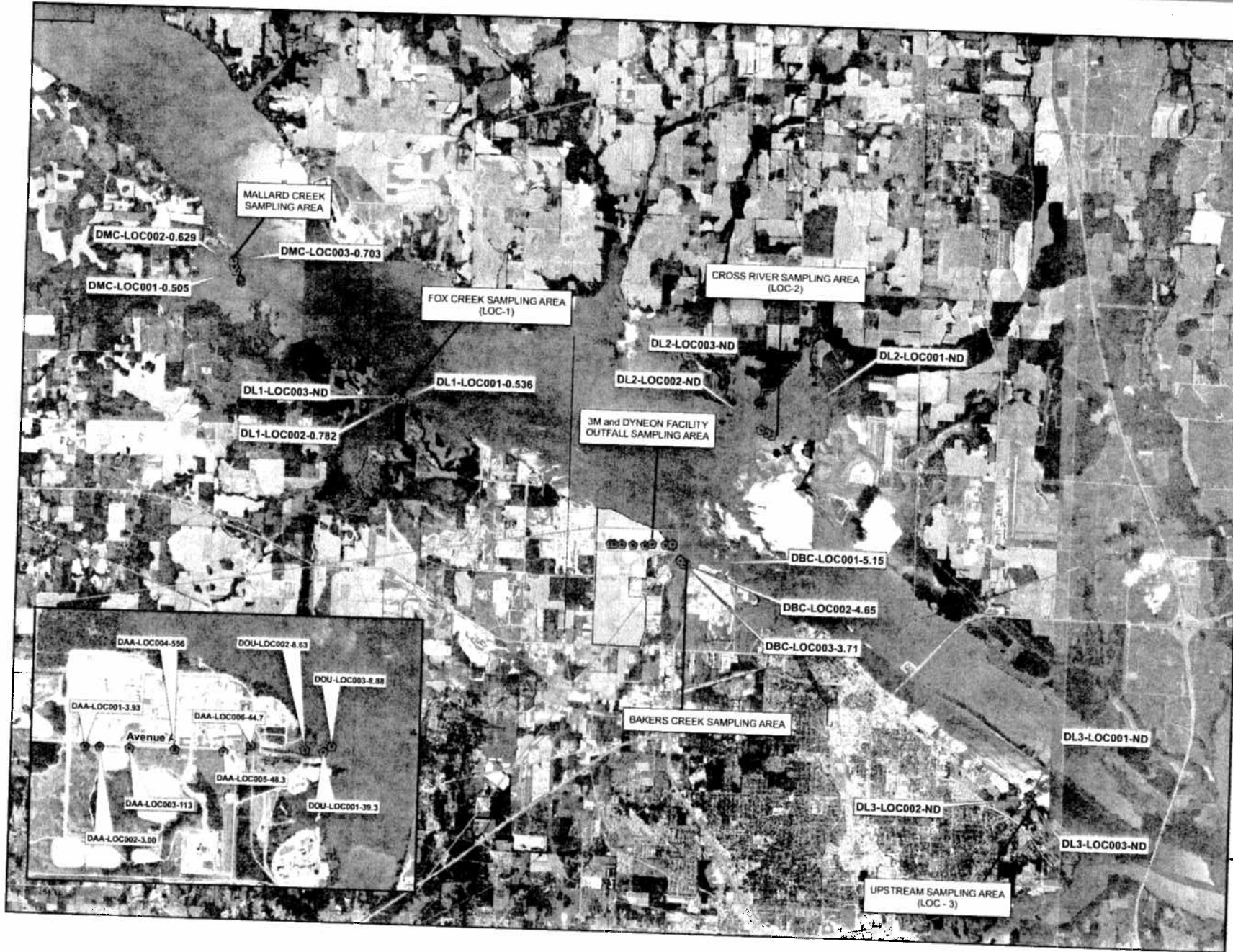
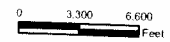
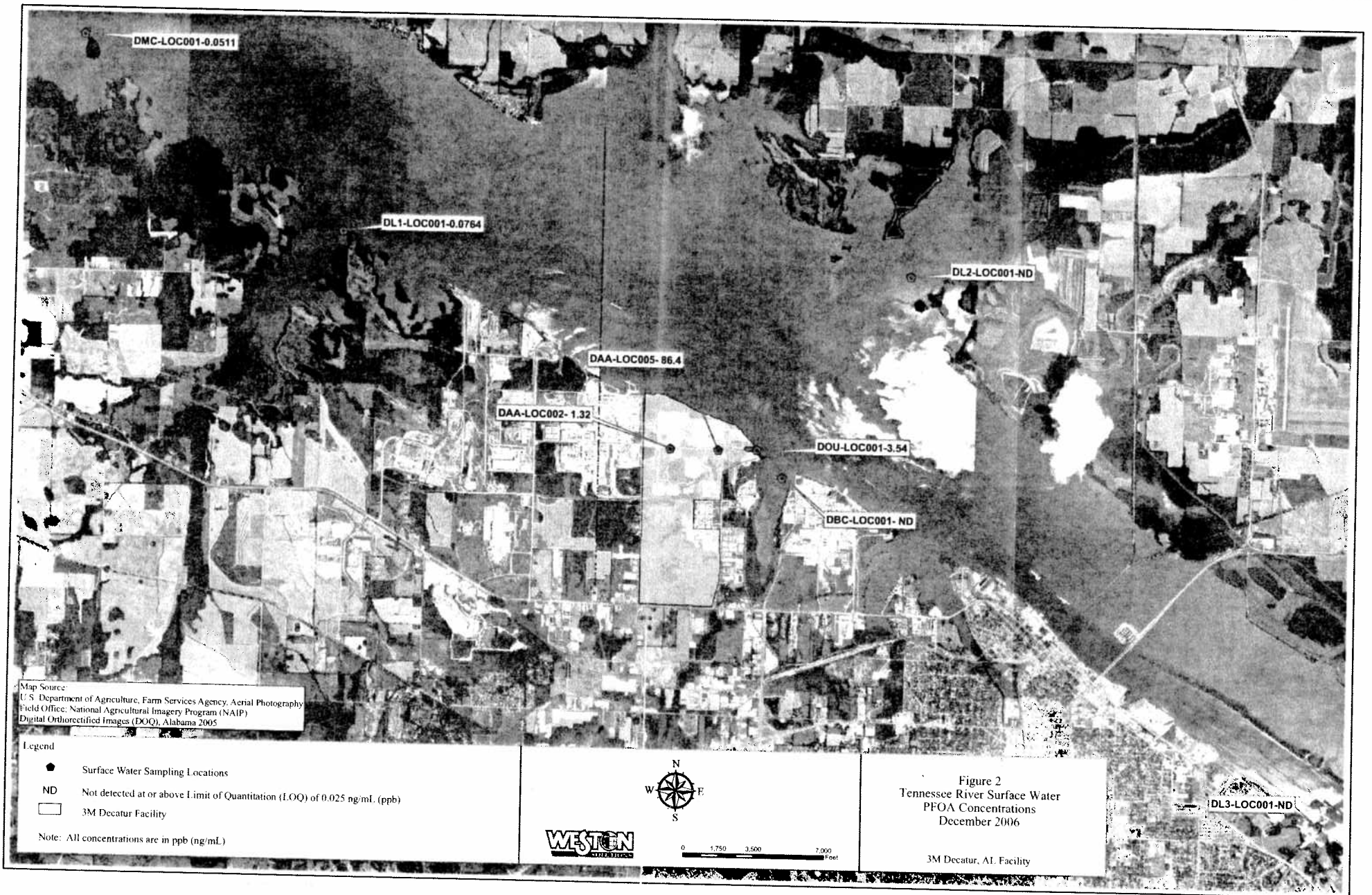


Figure 1
Tennessee River
Sediment PFOA Concentrations
December 2006
3M Decatur, AL Facility



Map Source:
 U.S. Department of Agriculture, Farm Services Agency, Aerial Photography
 Field Office, National Agricultural Imagery Program (NAIP)
 Digital Orthorectified Images (DOQ), Alabama 2005

- Legend
- Surface Water Sampling Locations
 - ND Not detected at or above Limit of Quantitation (LOQ) of 0.025 ng/mL (ppb)
 - 3M Decatur Facility

Note: All concentrations are in ppb (ng/mL)



0 1,750 3,500 7,000 Feet

Figure 2
 Tennessee River Surface Water
 PFOA Concentrations
 December 2006

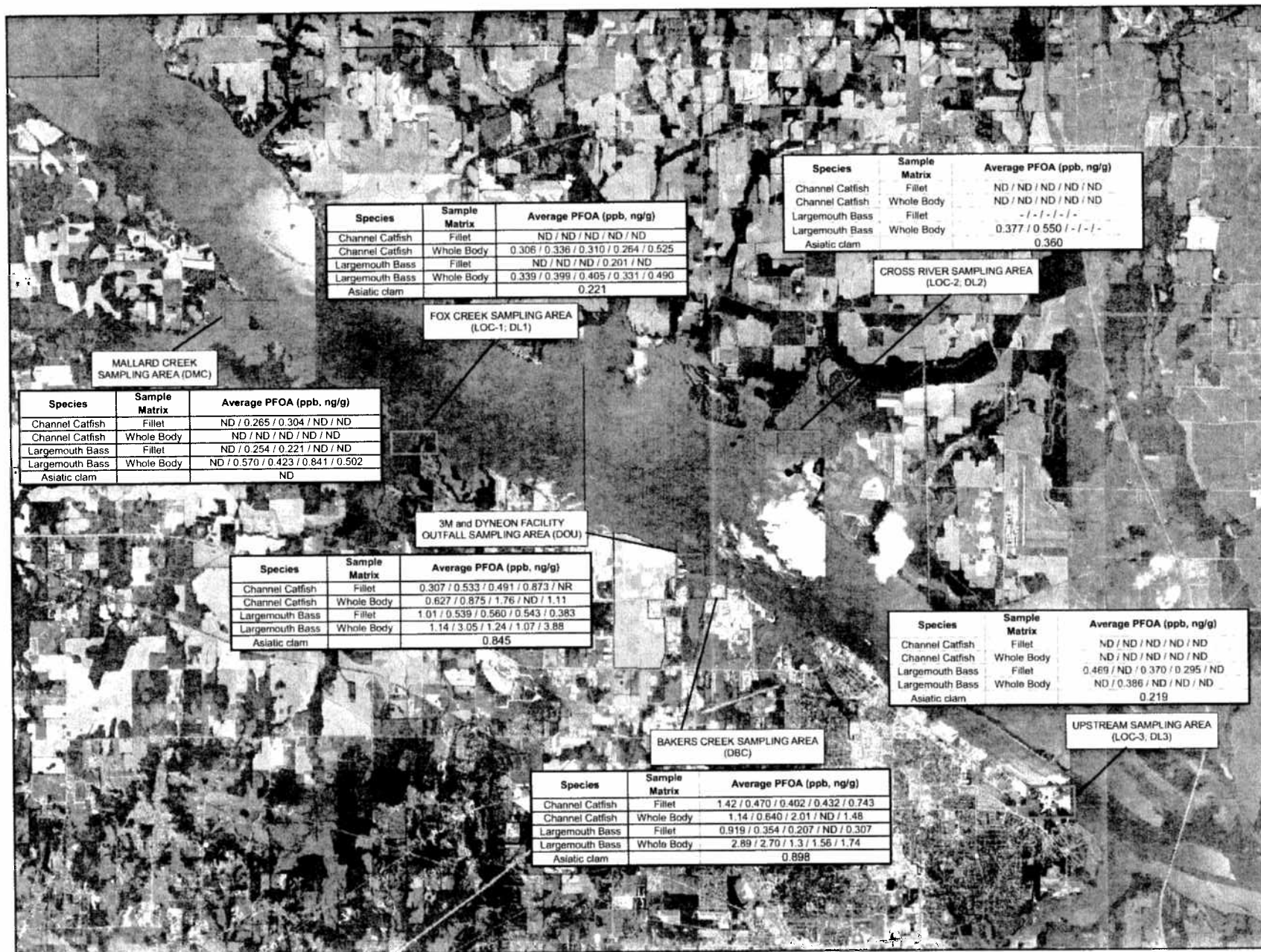
3M Decatur, AL Facility

DL3-LOC001-ND

Legend:

- Fish and Clam Sample Areas
- ND** Not detected at or above 0.2 ng/g
- NR** Not reported due to quality control issues
- 3M Decatur Facility

Note: Concentrations in parentheses are field duplicate values



0 3,500 7,000 Feet

Figure 3
Tennessee River
Fish and Clam PFOA Concentrations
December 2006
3M Decatur, AL Facility

Legend:

- Sediment Sampling Location
- 3M Decatur Facility
- ND Not detected at or above Limit of Quantitation

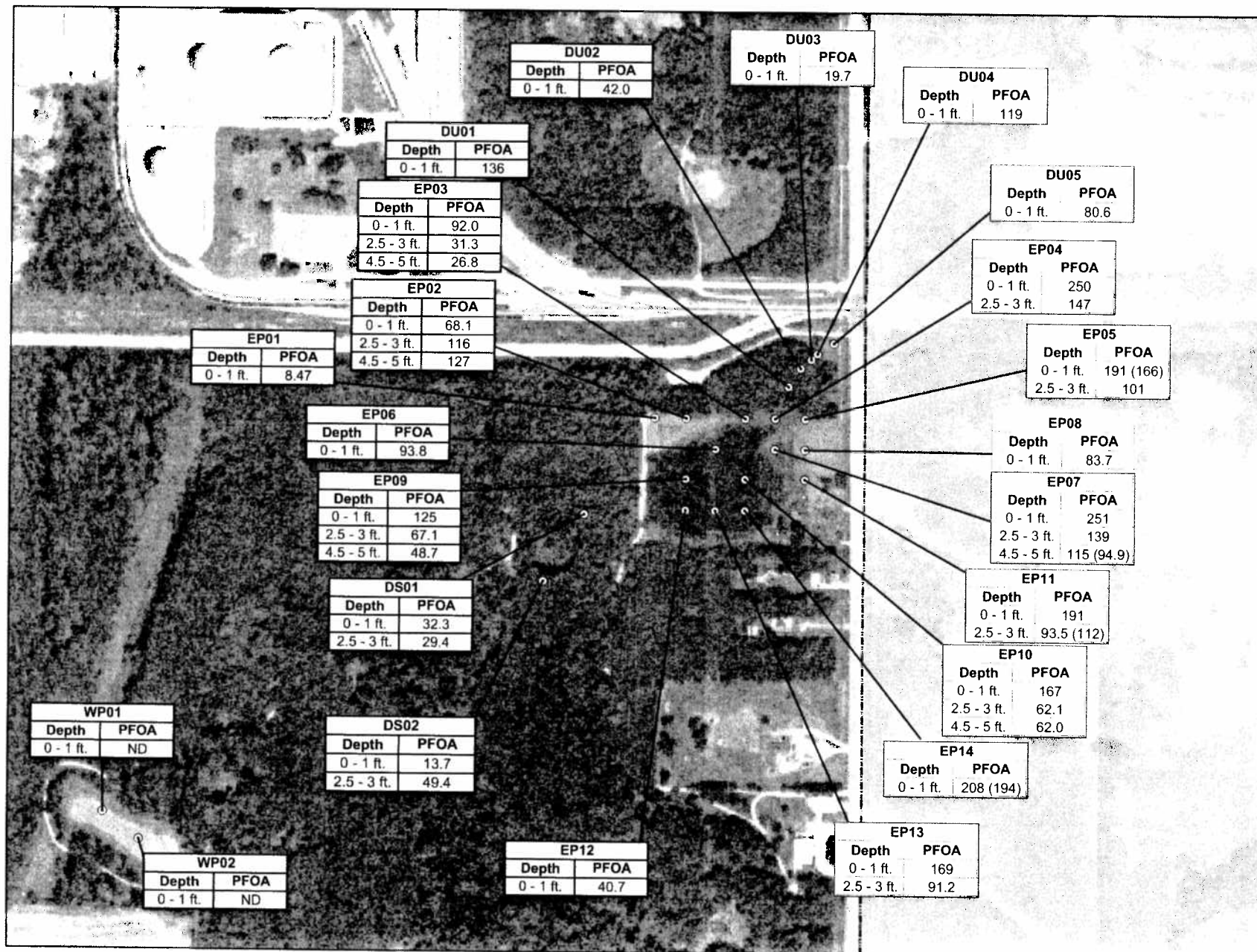
Notes:
Units in ng/g (ppb) dry weight basis.
Values in parentheses are field duplicate results.

Map Source:
U.S. Department of Agriculture,
Farm Services Agency,
Aerial Photography Field Office;
National Agricultural Imagery
Program (NAIP)
Digital Orthorectified Images (DOQ),
Alabama 2005



Figure 4

Off-Site Marsh and Drainageway
Sediment PFOA Concentrations
August 2007
3M Decatur, AL Facility





**APPENDIX TO ATTACHMENT 1
AQUATIC SAMPLING TECHNICAL PROGRESS REPORT**

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**INTERIM REPORT 1 – ANALYSIS OF DECATUR SURFACE WATER
AND SEDIMENT SAMPLES**

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INTERIM REPORT #1 – Analysis of Decatur Surface Water and Sediment Samples

STUDY TITLE

Analysis of Perfluorooctanoic Acid (PFOA) in Water, Soil, Sediment, Fish, and Clams
Using LC/MS/MS for the 3M Decatur Monitoring Program

DATA REQUIREMENTS

EPA TSCA Good Laboratory Practice Standards 40 CFR 792

STUDY DIRECTOR

Jaisimha Kesari P.E., DEE
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INTERIM REPORT COMPLETION DATE

February 28, 2008

TESTING FACILITY

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STUDY SPONSOR

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PROJECT

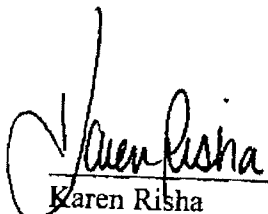
MPI Research Study Number: 0137.0219
ExyLIMS Protocol Number: P0003267

Total Pages: 101

GOOD LABORATORY PRACTICE COMPLIANCE STATEMENT


ExyLIMS Protocol Number P0003267, entitled "Analysis of Perfluorooctanoic Acid (PFOA) in Water, Soil, Sediment, Fish, and Clams Using LC/MS/MS for the 3M Decatur Monitoring Program," conducted for 3M Company, is being performed in compliance with EPA TSCA Good Laboratory Practice Standards 40 CFR 792 by MPI Research, Inc, with the following exception:

The primary standard SP0008065 was not characterized according to EPA TSCA GLP 40 CFR 792.



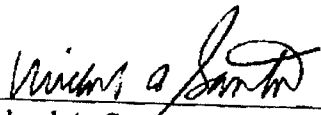
Karen Risha
Principal Investigator
MPI Research, Inc.

02/28/08
Date



Jaisimha Kesari P.E., DEE
Study Director
Weston Solutions, Inc.

3/3/08
Date



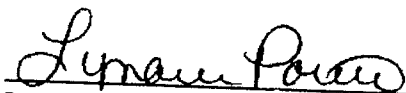
Michael A. Saproto
Sponsor Representative
3M Company

3/6/08
Date

QUALITY ASSURANCE STATEMENT

MPI Research's Quality Assurance Unit reviewed ExyLIMS Protocol Number P0003267, entitled, "Analysis of Perfluorooctanoic Acid (PFOA) in Water, Soil, Sediment, Fish, and Clams Using LC/MS/MS for the 3M Decatur Monitoring Program". All reviewed phases¹ were inspected for conduct according to MPI Research's Standard Operating Procedures, the Study Protocol, the Study Method, and all applicable Good Laboratory Practice Standards. All findings were reported to the MPI Principal Investigator, Management and to the Study Director.

<u>Phase</u>	<u>Date Inspected</u>	<u>Date Reported to Principal Investigator</u>	<u>Date Reported to MPI Management</u>	<u>Date Reported to Study Director</u>
Sample Preparation	07/02/07	07/02/07	07/02/07	07/02/07
Raw Data and Draft Report Review	08/08/07	08/13/07	08/13/07	08/13/07
Raw Data and Final Report Review	12/10/07	12/11/07	12/11/07	12/11/07



Lynann Porter
Quality Assurance Research Group Leader, Quality Assurance Unit

2-28-08
Date

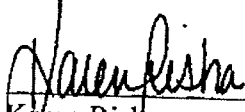
¹Note: All in-lab inspections and the protocol review will be documented in the QA statement for the final analytical report at the conclusion of the study. This QA statement involves only the review of the interim report and associated raw data.

CERTIFICATION OF AUTHENTICITY

This interim report, for ExyLIMS Protocol Number P0003267, is a true and complete representation of the raw data.

Submitted by: MPI Research, Inc.
3058 Research Drive
State College, PA 16801
(814) 272-1039

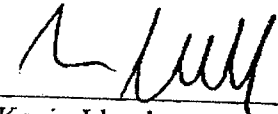
Principal Investigator, MPI:



Karen Risha
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MPI Research, Inc.

02/28/08
Date

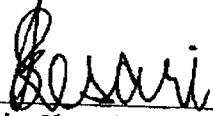
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Kevin Lloyd
General Manager, Analytical Sciences
MPI Research, Inc.

28-Feb-08
Date

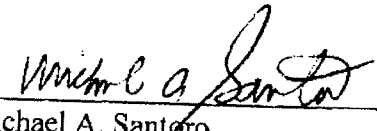
Study Director, Weston Solutions, Inc.



Jaisimha Kesari P.E., DEE
Weston Solutions, Inc.

3/3/08
Date

Sponsor Representative, 3M Company:



Michael A. Santoro
Director of Regulatory Affairs
3M Company

3/6/08
Date

STUDY IDENTIFICATION

Analysis of Perfluorooctanoic Acid (PFOA) in Water, Soil, Sediment, Fish, and Clams
Using LC/MS/MS for the 3M Decatur Monitoring Program

PROTOCOL NUMBER: P0003267

MPI STUDY NUMBER: 0137.0219

TYPE OF STUDY: Residue

SAMPLE MATRIX: Surface Water and Sediment

TEST SUBSTANCES: Perfluorooctanoic Acid (PFOA)

SPONSOR: 3M Company
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St. Paul, MN 55144

TESTING FACILITY: MPI Research, Inc.
3058 Research Drive
State College, PA 16801

ANALYTICAL PHASE
TIMETABLE: Study Initiation Date: 06/14/07
Interim Analytical Start Date: 06/19/07
Interim Analytical Termination Date: 11/09/07
Interim Report Completion Date: 02/28/08

PROJECT PERSONNEL

The Study Director for this project is Jaisimha Kesari at Weston Solutions, Inc. The following personnel from MPI Research, Inc. were associated with various phases of this interim portion of the study:

<u>Name</u>	<u>Title</u>
Karen Risha	Manager Analytical, Principal Investigator
Christine Edwards	Project Leader, Industrial Analysis
Krista Gallant	Research Chemist Associate 1
Ellen Dashem	Research Chemist Associate 1
Stacey Orso	Research Chemist Associate 1
Nancy Saxton	Research Chemist Associate 1
Mark Ammerman	Project Leader, Sample Control
Eric Edwards	Sample Custodian 2

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1.0 SUMMARY

MPI Research, Inc. successfully extracted and analyzed surface water and sediment samples for the determination of perfluorooctanoic acid (PFOA) according to 3M Environmental Laboratory Method ETS-8-012 (V0003400) (**Appendix A**, pg. 60).

The limit of quantitation (LOQ) for the analyte in the surface water samples are listed in **Table I**. The nominal LOQ for the method for surface water samples was 0.025 ng/mL. The limit of quantitation (LOQ) for the analyte in the sediment samples are listed in **Tables III**. The target LOQ for the method for sediment samples was 0.20 ng/g. After evaluation of the reagent blanks (method blanks) used for the analysis, the LOQ was determined. In some cases, the LOQ was raised due to the evaluation. A discussion of the process used to evaluate the reagent blanks can be found in section 6.4 of the report. In instances where raising the LOQ resulted in a non-detected sample result, the sample was re-extracted to obtain a lower LOQ. The LOQ for the analyte in the re-extracted surface water samples are listed in **Table II**. The nominal LOQ for the method for re-extracted surface water samples was 0.025 ng/mL.

Analytical results and assessed accuracies for the analysis of PFOA found in the surface water samples are summarized in **Table I**. Fortification recoveries for PFOA in the surface water samples are detailed in **Table IV**. The average percent recovery \pm standard deviation for PFOA in the surface water samples was $96 \pm 17\%$. Analytical results and assessed accuracies for the analysis of PFOA found in the re-extracted surface water samples are summarized in **Table II**. Fortification recoveries for PFOA in the re-extracted surface water samples are detailed in **Table V**. The average percent recovery \pm standard deviation for PFOA in the surface water samples was $102 \pm 2\%$. Analytical results and assessed accuracies for the analysis of PFOA found in the sediment samples are summarized in **Table III**. Fortification recoveries for PFOA in the sediment samples are detailed in **Table VI**. The average percent recovery \pm standard deviation for PFOA in the sediment samples was $106 \pm 12\%$.

The assessed accuracy for the majority of the samples reported is $\pm 30\%$. The accuracies were assessed for each sample by reviewing the matrix spike whose spiking level most closely matches the endogenous concentration found in the sample. Several surface water samples had raised LOQ values due to the reagent blank evaluation. In instances where the LOQ was raised and the sample result was non-detected, the sample was re-extracted to obtain quantitative results. In instances where the LOQ was raised for a quantitated sample, an expanded assessed accuracy of $\pm 50\%$ is being reported.

Total percent solid results for the sediment samples are detailed in **Table VII**.

2.0 OBJECTIVE

The objective of the analytical part of this study was to determine levels of perfluorooctanoic acid (PFOA) in surface water and sediment according to Protocol P0003267 (Appendix A).

3.0 INTRODUCTION

This report details the results of the analysis for the determination of PFOA in surface water and sediment using the 3M Environmental Laboratory analytical method ETS-8-012.1 (V0003400) entitled, "Method of Analysis for the Determination of Perfluorobutanoic Acid (PFBA), Perfluoropentanoic Acid (PFPeA), Perfluorohexanoic Acid (PFHA), Perfluoroheptanoic Acid (PFHpA), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), Perfluorodecanoic Acid (PFDA), Perfluoroundecanoic Acid (PFUnA), Perfluorododecanoic Acid (PFDoA), Perfluorobutanesulfonate (PFBS), Perfluorohexanesulfonate (PFHS), and Perfluorooctanesulfonate (PFOS) in Water, Soil and Sediment by LC/MS/MS."

The study was initiated on June 14, 2007, when the study director signed protocol number P0003267. The analytical start date for this interim report was June 19, 2007, and the analytical termination date for this interim report was November 9, 2007.

4.0 ANALYTICAL TEST SAMPLES

A total of sixty-four samples (ExyLIMS ID C0226986 – C0227003, C0227200 – C0227234, and C0227532 – C0227542, from login ID L00010412), forty surface waters and twenty-four sediments, were received on wet ice on December 20, 2006 from Charles Young at Weston Solutions, Inc. The forty surface water samples represented three rinse blanks, one trip blank, two associated trip blank field spikes, and eight surface water sites with their associated field spikes. All samples were logged in by MPI personnel and placed in refrigerated storage.

Sample identification (ID) codes for the surface water and sediment samples are of the form Dxx-Sx-LOCxxx-x(x)-06012xx and are composed of the strings described below:

The first string defines the sampling area where D indicates the Decatur, Alabama general study area and L3 = LOI Location 3 at Mallard Point Park, L2 = LOI Location 2 at Swan Creek mouth, L1 = LOI Location 1 at Fox Creek mouth, MC = Mallard Creek mouth, BC = Bakers Creek mouth, OU = 3M outfall cove, and AA = Avenue A drainage.

The second string defines the sample matrix where SW = surface water and SD = sediment.

The third string indicates the specific sampling location.

The fourth string describes the sample aliquot where 0 = primary sample volume, DB = duplicate sample volume, LS = low spike, MS = mid spike, HS = high spike, and RB = equipment rinseate blank.

The final string is the sample collection date in YYMMDD format.

Sample log-in and chain of custody information is located in the raw data package associated with this interim report. Storage records will be kept at MPI Research, Inc. (State College).

5.0 REFERENCE MATERIAL

The requisition information, lot, purity, and expiration date for the reference material used in this study is listed below. The reference material was stored refrigerated.

<u>Compound</u>	<u>ExyLIMS Inventory No.</u>	<u>Supplier</u>	<u>Lot #</u>	<u>Purity (%)</u>	<u>Expiration Date</u>	<u>Received Date</u>
PFOA	SP0008065	Oakwood Products, Inc.	Y16G	98	No Definitive Expiration	09/08/06

The molecular structure of the standard is given below:

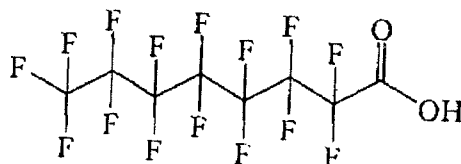
PFOA

Chemical Name: Perfluorooctanoic acid

Molecular Weight: 414

Transitions Monitored: 413 → 369
413 → 219

Structure:



6.0 DESCRIPTION OF ANALYTICAL METHOD

The 3M Environmental Laboratory analytical method ETS-8-012.1 (V0003400) entitled, "Method of Analysis for the Determination of Perfluorobutanoic Acid (PFBA), Perfluoropentanoic Acid (PFPeA), Perfluorohexanoic Acid (PFHA), Perfluoroheptanoic

Acid (PFHpA), Perfluorooctanoic Acid (PFOA), Perfluorononanoic Acid (PFNA), Perfluorodecanoic Acid (PFDA), Perfluoroundecanoic Acid (PFUnA), Perfluorododecanoic Acid (PFDoA), Perfluorobutanesulfonate (PFBS), Perfluorohexanesulfonate (PFHS), and Perfluorooctanesulfonate (PFOS) in Water, Soil and Sediment by LC/MS/MS” was used for the sample analysis in this study.

6.1 Extraction Procedure for Surface Water

A 10 mL aliquot of the water sample was used for the extraction procedure. The sample was measured into a 50 mL polypropylene centrifuge tube. The appropriate samples were fortified and 10 mL of acetonitrile was added. The samples were capped tightly and shaken. The samples were placed into an ultrasonic bath at room temperature for ~2 hours. The samples were then centrifuged at ~3000 rpm for 10 minutes. A portion of the supernate was then transferred to an autosampler vial. Each sample was analyzed by LC/MS/MS electrospray.

6.2 Extraction Procedure for Sediment

A 1 gram aliquot of the soil sample was used for the extraction procedure. The sample was weighed into a 15 mL polypropylene centrifuge tube. The appropriate samples were fortified and 8 mL of 80:20 acetonitrile:water was added. The samples were capped tightly and shaken. The samples were placed into an ultrasonic bath at room temperature for ~2 hours. The samples were then centrifuged at ~3000 rpm for 10 minutes. A portion of the supernate was then transferred to an autosampler vial. Each sample was analyzed by LC/MS/MS electrospray.

6.3 Preparation of Standards and Fortification Solutions

A stock standard solution was prepared as specified in the method. The stock standard solution was prepared at a concentration of 10,000 µg/mL by dissolving 1.0 g of the standard (corrected for purity and salt content, if necessary) in acetonitrile. From that solution, a 1000 µg/mL fortification standard solution was prepared by taking 10 mL of the stock and bringing the volume up to 100 mL with acetonitrile. By taking 10 mL of the 1000 µg/mL fortification standard and bringing the volume up to 100 mL with acetonitrile, a 100 µg/mL fortification standard was prepared. By taking 10 mL of the 100 µg/mL fortification standard and bringing the volume up to 100 mL with acetonitrile, a 10 µg/mL fortification standard was prepared. By taking 10 mL of the 10 µg/mL fortification standard and bringing the volume up to 100 mL with acetonitrile, a 1.0 µg/mL fortification standard was prepared. By taking 10 mL of the 1.0 µg/mL fortification standard and bringing the volume up to 100 mL with acetonitrile, a 0.1 µg/mL fortification standard was prepared. By taking 10 mL of the 0.1 µg/mL fortification standard and bringing the volume up to 100 mL with acetonitrile, a 0.01 µg/mL fortification standard was prepared.

A set of external calibration standards were prepared in 50:50 acetonitrile:water. The following concentrations were prepared:

Conc. of Fort. Solution (ng/mL)	Aliquot Volume (mL)	Final Volume of Solution (mL)	Final Conc. of Calibration Std. (ng/mL)
100	5.0	100	5.0
100	2.5	100	2.5
100	1.0	100	1.0
5.0	10	100	0.50
2.5	10	100	0.25
1.0	10	100	0.10
0.5	10	100	0.05
0.25	10	100	0.025

The stock standard solution and the 1000 µg/mL standard solution were stored in a freezer (-20° ± 5°C) when not in use. All other fortification and calibration standard solutions were stored in a refrigerator (4° ± 2°C) when not in use. Documentation of standard preparation is located in the raw data package associated with this interim report.

6.4 Chromatography

Quantification of the analyte was accomplished by LC/MS/MS electrospray. The retention time of PFOA was 3.9 minutes. Method blanks prepared for each data set were used to determine the LOQ. In instances where there were no peaks in the method blanks, the LOQ was determined by the concentration of the lowest standard injected in the analytical run that met the 70–130% recovery range of its known value. In instances where there were peaks detected in the method blanks, the blanks were evaluated. If the average of the responses of all the method blanks was less than 50 % of the response of the lowest standard meeting the recovery criteria, then the LOQ was determined by the lowest standard. If the average of the responses of all the method blanks was greater than 50 % of the response of the lowest standard meeting the recovery criteria, then the LOQ was raised to the standard that met the less than 50 % criteria.

6.5 Instrument Sensitivity

The smallest standard amount injected during the chromatographic run had a concentration of 0.0125 ng/mL for the surface water samples, and a concentration of 0.025 ng/mL for the sediment samples.

6.6 Description of LC/MS/MS Instruments and Operating Conditions

Instruments: API 5000 Biomolecular Mass Analyzer
 Interface: SCIEX Turbo Ion Spray Liquid Introduction Interface
 Computer: DELL Precision 360
 DELL OptiPlex GX400
 Software: PE SCIEX Analyst 1.4.1
 HPLC: Hewlett Packard (HP) Series 1200
 Hewlett Packard (HP) Series 1100
 HP Quat Pump
 HP Vacuum Degasser
 HP Autosampler
 HP Column Oven
 HPLC Column: Phenomenex Luna C8 (2) Mercury, 2cm x 4 mm, 3µm
 Column Temp.: ~35° C
 Injection Vol.: 10 µL
 Mobile Phase (A): 2 mM Ammonium Acetate in water
 Mobile Phase (B): Methanol
 Gradient:

Time (min)	% A	% B
0.0	90	10
0.5	90	10
2.0	10	90
5.0	10	90
5.1	0	100
6.0	0	100
6.1	90	10
10.0	90	10

Total run time: ~10 min
 Flow Rate: 0.75 mL/min
 Ions monitored:

Analyte	Mode	Transition Monitored	Retention Time (min)
PFOA	negative	413 → 369	~3.9 min.
PFOA Confirmation Ion	negative	413 → 219	~3.9 min.

6.7 Quantitation and Example Calculation

Ten microliters of sample or calibration standard was injected into the LC/MS/MS. The peak area was measured and the standard curve was generated (using 1/x fit weighted linear regression) by Analyst software using eight or nine concentrations of standards. The concentration was determined from the following equations.

Equation 1 calculated the amount of analyte found (in ng/mL, based on peak area) using the standard curve (linear regression parameters) generated by the Analyst software program.

Equation 1:

$$\text{Analyte found (ng/mL)} = \frac{(\text{Peak area} - \text{intercept}) \times \text{EDF} \times \text{PEDF}}{\text{slope}}$$

Where: EDF = Extraction Dilution Factor, factor by which the sample volume was diluted during the extraction (EDF =2 for water samples and EDF =1 for soil samples).

PEDF = Post Extraction Dilution Factor, factor by which the final volume was diluted, if necessary.

For the sediment samples, equation 2 was used to convert the amount of analyte found in ng/mL to ng/g (ppb).

Equation 2:

$$\text{Analyte found (ppb)} = \frac{[\text{analyte found (ng/mL)} \times \text{volume extracted (8 mL)}]}{\text{sample weight (1 g)}}$$

Equation 3 was then used to calculate the amount of analyte found in ppb based on dry weight.

Equation 3:

$$\text{Analyte found (ppb) dry weight} = \text{analyte found (ppb)} \times [100\% / \text{total solids}(\%)]$$

$$\text{NOTE: Total solids (\%)} = [\text{dry weight (g)} / \text{wet weight (g)}] \times 100\%$$

For samples fortified with known amounts of analyte prior to extraction, Equation 4 was used to calculate the percent recovery.

Equation 4:

For water samples:

Recovery (%) =

$$\frac{(\text{total analyte found (ng/mL)} - \text{average analyte in sample (ng/mL)})}{\text{analyte added (ng/mL)}} \times 100\%$$

For sediment samples (based on wet weight):

Recovery (%) =

$$\frac{(\text{total analyte found (ng/g)} - \text{average analyte in sample (ng/g)})}{\text{analyte added (ng/g)}} \times 100\%$$

An example of a calculation using an actual sample follows:

Sediment sample Exygen ID: C0226989 Spike C (Set: 062507H), fortified at 2.0 ng/g with PFOA where:

peak area	=	48526
intercept	=	3170
slope	=	167000
extraction dilution factor	=	1
post extraction dilution factor	=	1
ng/g PFOA added (fort level)	=	2.0 ng/g
average amt in corresponding sample	=	ND (not detected)
total percent solid	=	48.16 %

From equation 1:

$$\begin{aligned} \text{Analyte found (ng/mL)} &= \frac{[48526 - 3170]}{167000} \times 1 \times 1 \\ &= 0.272 \text{ ng/mL} \end{aligned}$$

From equation 2:

$$\begin{aligned} \text{Analyte found, wet weight (ng/g)} &= \frac{(0.272 \text{ ng/mL} \times 8 \text{ mL})}{1 \text{ g}} \\ &= 2.18 \text{ ng/g} \end{aligned}$$

From equation 3:

$$\begin{aligned} \text{Analyte found (ng/g, ppb) dry weight} &= 2.18 \text{ ng/g} \times [100\% / 48.16\%] \\ &= 4.53 \text{ ng/g} \end{aligned}$$

From equation 4:

$$\begin{aligned} \% \text{ Recovery} &= \frac{(2.18 \text{ ng/g})}{2.0 \text{ ng/g}} \times 100\% \\ &= 109\% \end{aligned}$$

NOTE: Numbers may differ slightly from raw data due to rounding.

7.0 EXPERIMENTAL DESIGN

For water samples designated as field matrix spikes, PFOA was added at a known concentration to the bottles in the laboratory before being shipped to the field. The samples were filled to a 200 mL volumetric fill line in the field. For the sediment samples designated as laboratory matrix spikes, PFOA was added to the samples after they were aliquotted in the laboratory, before the extraction solvent was added to the samples.

The surface water samples were initially extracted in three sets. The sets included four reagent blanks (method blanks), three reagent blanks fortified at one lower level and three reagent blanks fortified at one higher level of known concentrations. The first two sets contained three surface water sample sites. The last set contained two sample sites, three equipment rinseate blanks, and one trip blank and associated trip blank field spikes. For each site, a sample, a field duplicate and a range of two to three matrix field spikes were collected and extracted.

Two water sample sites were re-extracted in one set. The set included three reagent blanks (method blanks), three reagent blanks fortified at one lower level and three reagent blanks fortified at one higher level of known concentrations. For each of the two water sites in the set, a sample, a field duplicate and two matrix field spikes were re-extracted.

The sediment samples were extracted in eight sets. Each set included four control blanks (method blanks), three control blanks fortified at one lower level and three control blanks fortified at one higher level of known concentrations. All eight sets contained three sample sites. For each sample site, a sample, a laboratory replicate, and three laboratory matrix spikes were prepared and extracted.

8.0 RESULTS

The limit of quantitation (LOQ) for the analyte in the surface water samples are listed in **Table I**. The nominal LOQ for the method for surface water samples was 0.025 ng/mL. The limit of quantitation (LOQ) for the analyte in the sediment samples are listed in **Tables III**. The target LOQ for the method for sediment samples was 0.20 ng/g. After evaluation of the reagent blanks (method blanks) used for the analysis, the LOQ was determined. In some cases, the LOQ was raised due to the evaluation. A discussion of the process used to evaluate the reagent blanks can be found in section 6.4 of the report. In instances where raising the LOQ resulted in a non-detected sample result, the sample was re-extracted to obtain a lower LOQ. The LOQ for the analyte in the re-extracted surface water samples are listed in **Table II**. The nominal LOQ for the method for re-extracted surface water samples was 0.025 ng/mL.

Analytical results and assessed accuracies for the analysis of PFOA found in the surface water samples are summarized in **Table I**. Fortification recoveries for PFOA in the surface water samples are detailed in **Table IV**. The average percent recovery \pm standard deviation for PFOA in the surface water samples was $96 \pm 17\%$. Analytical results and assessed accuracies for the analysis of PFOA found in the re-extracted surface water samples are summarized in **Table II**. Fortification recoveries for PFOA in the re-extracted surface water samples are detailed in **Table V**. The average percent recovery \pm standard deviation for PFOA in the surface water samples was $102 \pm 2\%$. Analytical results and assessed accuracies for the analysis of PFOA found in the sediment samples are summarized in **Table III**. Fortification recoveries for PFOA in the sediment samples

are detailed in **Table VI**. The average percent recovery \pm standard deviation for PFOA in the sediment samples was $106 \pm 12\%$.

The assessed accuracy for the majority of the samples reported is $\pm 30\%$. The accuracies were assessed for each sample by reviewing the matrix spike whose spiking level most closely matches the endogenous concentration found in the sample. Several surface water samples had raised LOQ values due to the reagent blank evaluation. In instances where the LOQ was raised and the sample result was non-detected, the sample was re-extracted to obtain quantitative results. In instances where the LOQ was raised for a quantitated sample, an expanded assessed accuracy of $\pm 50\%$ is being reported.

Total percent solid results for the sediment samples are detailed in **Table VII**.

9.0 CONCLUSION

The surface water and sediment samples were successfully extracted and analyzed for PFOA according 3M Environmental Laboratory analytical method ETS-8-012.1 (V0003400).

10.0 RETENTION OF DATA AND SAMPLES

All original paper data generated by MPI Research, Inc. (State College) that pertains to this interim report will be shipped to the study director. This does not include facility-specific raw data such as instrument or temperature logs. Exact copies of all raw data, as well as a signed copy of the final analytical report and all original facility-specific raw data, will be retained in the MPI Research, Inc. (State College) archives for the period of time specified in EPA TSCA Good Laboratory Practice Standards 40 CFR 792.

TABLES

Table I. Summary of PFOA in Surface Water Samples

Exygen ID	Client Sample ID	Analyte Found (ppb, ng/mL)	C8 Acid PFOA Perfluorooctanoic Acid	
			Acceptable LOQ (ng/mL)	Assessed Accuracy (+/- %)
C0227200	DL3-SW-LOC001-0-061214	ND	0.025	30
C0227201	DL3-SW-LOC001-DB-061214	ND	0.025	30
C0227204	DL2-SW-LOC001-0-061214	ND	0.025	30
C0227205	DL2-SW-LOC001-DB-061214	ND	0.025	30
C0227208	DBC-SW-LOC001-0-061214	ND	0.025	30
C0227209	DBC-SW-LOC001-DB-061214	ND	0.025	30
C0227212	DOU-SW-LOC001-0-061213	3.65	0.200	50
C0227213	DOU-SW-LOC001-DB-061213	3.43	0.200	50
C0227216	DL1-SW-LOC001-0-061213	NR*	-	-
C0227217	DL1-SW-LOC001-DB-061213	NR*	-	-
C0227220	DMC-SW-LOC001-0-061213	NR*	-	-
C0227221	DMC-SW-LOC001-DB-061213	NR*	-	-
C0227224	DAA-SW-LOC002-0-061215	1.31	0.025	30
C0227225	DAA-SW-LOC002-DB-061215	1.32	0.025	30
C0227229	DOU-F02-IPF004-RB-061212	ND	0.025	30
C0227230	DL2-SW-LOC001-RB-061214	ND	0.025	30
C0227231	DAA-SD-LOC006-RB-061215	ND	0.025	30
C0227232	Trip Blank	ND	0.025	30
C0227538	DAA-SW-LOC005-0-061215	86.0	0.025	30
C0227539	DAA-SW-LOC005-DB-061215	86.7	0.025	30

ND = Not detected at or above the acceptable LOQ.

NR* = Not reported due to elevated LOQ; see Table II for re-extracted sample results.

Table II. Summary of PFOA in Re-Extracted Surface Water Samples

Exygen ID	Client Sample ID	Analyte Found (ppb, ng/mL)	C8 Acid PFOA Perfluorooctanoic Acid	
			Acceptable LOQ (ng/mL)	Assessed Accuracy (+/- %)
C0227216	DL1-SW-LOC001-0-061213	0.0831	0.050	30
C0227217	DL1-SW-LOC001-DB-061213	0.0697	0.050	30
C0227220	DMC-SW-LOC001-0-061213	0.0511 ¹	0.050	30
C0227221	DMC-SW-LOC001-DB-061213	ND ¹	0.050	30

ND = Not detected at or above the acceptable LOQ.

¹Relative Percent Difference was not calculated due to the presence of a nondetect and resulting uncertainty

Table III. Summary of PFOA in Sediment Samples

Exogen ID	Client Sample ID	C8 Acid PFOA Perfluorooctanoic Acid		
		Analyte Found (ppb, ng/g) Dry Weight	Acceptable LOQ (ng/g)	Assessed Accuracy (+/- %)
C0226986	DL3-SD-LOC001-0-061214	ND	0.20	30
C0226986 Rep	DL3-SD-LOC001-0-061214*	ND	0.20	30
C0226987	DL3-SD-LOC002-0-061214	ND	0.20	30
C0226987 Rep	DL3-SD-LOC002-0-061214*	ND	0.20	30
C0226988	DL3-SD-LOC003-0-061214	ND	0.20	30
C0226988 Rep	DL3-SD-LOC003-0-061214*	ND	0.20	30
C0226989	DL2-SD-LOC001-0-061214	ND	0.20	30
C0226989 Rep	DL2-SD-LOC001-0-061214*	ND	0.20	30
C0226990	DL2-SD-LOC002-0-061214	ND	0.20	30
C0226990 Rep	DL2-SD-LOC002-0-061214*	ND	0.20	30
C0226991	DL2-SD-LOC003-0-061214	ND	0.20	30
C0226991 Rep	DL2-SD-LOC003-0-061214*	ND	0.20	30
C0226992	DBC-SD-LOC001-0-061214	5.60	0.20	30
C0226992 Rep	DBC-SD-LOC001-0-061214*	4.70	0.20	30
C0226993	DBC-SD-LOC002-0-061214	4.98	0.20	30
C0226993 Rep	DBC-SD-LOC002-0-061214*	4.32	0.20	30
C0226994	DBC-SD-LOC003-0-061214	3.98	0.20	30
C0226994 Rep	DBC-SD-LOC003-0-061214*	3.44	0.20	30
C0226995	DOU-SD-LOC001-0-061213	23.9 ^a	0.20	30
C0226995 Rep	DOU-SD-LOC001-0-061213*	54.6 ^a	0.20	30
C0226996	DOU-SD-LOC002-0-061213	8.61	0.20	30
C0226996 Rep	DOU-SD-LOC002-0-061213*	8.65	0.20	30
C0226997	DOU-SD-LOC003-0-061213	8.59	0.20	30
C0226997 Rep	DOU-SD-LOC003-0-061213*	9.16	0.20	30
C0226998	DL1-SD-LOC001-0-061213	0.588	0.20	30
C0226998 Rep	DL1-SD-LOC001-0-061213*	0.485	0.20	30
C0226999	DL1-SD-LOC002-0-061213	1.10 ^a	0.20	30
C0226999 Rep	DL1-SD-LOC002-0-061213*	0.463 ^a	0.20	30
C0227000	DL1-SD-LOC003-0-061213	ND	0.20	30
C0227000 Rep	DL1-SD-LOC003-0-061213*	ND	0.20	30
C0227001	DMC-SD-LOC001-0-061213	ND ¹	0.20	30
C0227001 Rep	DMC-SD-LOC001-0-061213*	0.505 ¹	0.20	30
C0227002	DMC-SD-LOC002-0-061213	0.602	0.20	30
C0227002 Rep	DMC-SD-LOC002-0-061213*	0.658	0.20	30
C0227003	DMC-SD-LOC003-0-061213	0.532 ^a	0.20	30
C0227003 Rep	DMC-SD-LOC003-0-061213*	0.873 ^a	0.20	30
C0227532	DAA-SD-LOC005-0-061215	43.3	0.20	30
C0227532 Rep	DAA-SD-LOC005-0-061215*	46.1	0.20	30
C0227533	DAA-SD-LOC005-0-061215	45.3	0.20	30
C0227533 Rep	DAA-SD-LOC005-0-061215*	51.2	0.20	30
C0227534	DAA-SD-LOC004-0-061215	537	0.20	30
C0227534 Rep	DAA-SD-LOC004-0-061215*	574	0.20	30
C0227535	DAA-SD-LOC003-0-061215	116	0.20	30
C0227535 Rep	DAA-SD-LOC003-0-061215*	110	0.20	30
C0227536	DAA-SD-LOC002-0-061215	3.78 ^a	0.20	30
C0227536 Rep	DAA-SD-LOC002-0-061215*	2.22 ^a	0.20	30
C0227537	DAA-SD-LOC001-0-061215	4.33	0.20	30
C0227537 Rep	DAA-SD-LOC001-0-061215*	3.53	0.20	30

¹Laboratory Duplicate

^aRelative Percent Difference > 30%

¹Relative Percent Difference was not calculated due to the presence of a nondetect and resulting uncertainty.

ND = Not detected at or above the acceptable LOQ.

**Table IV. Matrix Spike Recovery Summary of PFOA in Surface
Water Samples**

Sample Description	Amount Spiked (ng/mL)	Amt Found In Sample (ng/mL)	C8 Acid PFOA Perfluorooctanoic Acid	
			Amount Recovered (ng/mL)	Recovery (%)
DL3-SW-LOC001-LS-061214 (C0227202, 0.25 ppb Field Spike)	0.25	ND	0.204	82
DL3-SW-LOC001-HS-061214 (C0227203, 5.0 ppb Field Spike)	5.0	ND	NA	NA
DL2-SW-LOC001-LS-061214 (C0227206, 0.25 ppb Field Spike)	0.25	ND	0.206	82
DL2-SW-LOC001-HS-061214 (C0227207, 5.0 ppb Field Spike)	5.0	ND	NA	NA
DBC-SW-LOC001-LS-061214 (C0227210, 0.25 ppb Field Spike)	0.25	ND	0.302	121
DBC-SW-LOC001-HS-061214 (C0227211, 5.0 ppb Field Spike)	5.0	ND	NA	NA
DOU-SW-LOC001-LS-061213 (C0227214, 0.25 ppb Field Spike)	0.25	3.54	NA	NA
DOU-SW-LOC001-HS-061213 (C0227215, 5.0 ppb Field Spike)	5.0	3.54	7.52	80
DL1-SW-LOC001-LS-061213 (C0227218, 0.25 ppb Field Spike)	0.25	NR*	NR*	NR*
DL1-SW-LOC001-HS-061213 (C0227219, 5.0 ppb Field Spike)	5.0	NR*	NR*	NR*
DMC-SW-LOC001-LS-061213 (C0227222, 0.25 ppb Field Spike)	0.25	NR*	NR*	NR*
DMC-SW-LOC001-HS-061213 (C0227223, 5.0 ppb Field Spike)	5.0	NR*	NR*	NR*
DAA-SW-LOC002-LS-061215 (C0227226, 0.25 ppb Field Spike)	0.25	1.32	NA	NA
DAA-SW-LOC002-MS-061215 (C0227227, 5.0 ppb Field Spike)	5.0	1.32	5.72	88
DAA-SW-LOC002-HS-061215 (C0227228, 100 ppb Field Spike)	100	1.32	NA	NA
Trip Blank Low Spike (C0227233, 0.25 ppb Field Spike)	0.25	ND	0.290	116
Trip Blank High Spike (C0227234, 5.0 ppb Field Spike)	5.0	ND	NA	NA
DAA-SW-LOC005-LS-061215 (C0227840, 0.25 ppb Field Spike)	0.25	86.4	NA	NA
DAA-SW-LOC005-MS-061215 (C0227841, 5.0 ppb Field Spike)	5.0	86.4	NA	NA
DAA-SW-LOC005-HS-061215 (C0227842, 100 ppb Field Spike)	100	86.4	192	106

Average: 96
Standard Deviation: 17

ND = Not detected at or above the acceptable LOQ reported in Table I.
NA = Not applicable. This matrix spike concentration was not used to assess the accuracy for this analyte.
NR* = Not reported due to elevated LOQ; see Table V for re-extracted matrix spike results.
Note: Since this summary table shows rounded results, recovery values may vary slightly from the values in the raw data.

Table V. Matrix Spike Recovery Summary of PFOA in Re-Extracted Surface Water Samples

Sample Description	Amount Spiked (ng/mL)	Amt Found in Sample (ng/mL)	C8 Acid PFOA Perfluorooctanoic Acid	
			Amount Recovered (ng/mL)	Recovery (%)
DL1-SW-LOC001-LS-061213 (C0227218, 0.25 ppb Field Spike)	0.25	0.0764	0.334	103
DL1-SW-LOC001-HS-061213 (C0227219, 5.0 ppb Field Spike)	5.0	0.0764	NA	NA
DMC-SW-LOC001-LS-061213 (C0227222, 0.25 ppb Field Spike)	0.25	0.0505	0.302	101
DMC-SW-LOC001-HS-061213 (C0227223, 5.0 ppb Field Spike)	5.0	0.0505	NA	NA

Average: 102
Standard Deviation: 2

ND = Not detected at or above the acceptable LOQ reported in Table II.
NA = Not applicable. This matrix spike concentration was not used to assess the accuracy for this analyte.
Note: Since this summary table shows rounded results, recovery values may vary slightly from the values in the raw data.

Table VI. Matrix Spike Recovery Summary of PFOA in Sediment Samples

Sample Description	Amount Spiked (ng/g)	Amt Found in Sample (ng/g) wet wt.	C8 Acid PFOA Perfluorooctanoic Acid	
			Amount Recovered (ng/g) wet wt.	Recovery (%)
DL3-SD-LOC001-0-061214 (C0226986 Spk C, 2.0 ppb Spike)	2.0	ND	2.10	105
DL3-SD-LOC001-0-061214 (C0226986 Spk D, 40 ppb Spike)	40	ND	NA	NA
DL3-SD-LOC001-0-061214 (C0226986 Spk E, 800 ppb Spike)	800	ND	NA	NA
DL3-SD-LOC002-0-061214 (C0226987 Spk F, 2.0 ppb Spike)	2.0	ND	2.08	104
DL3-SD-LOC002-0-061214 (C0226987 Spk G, 40 ppb Spike)	40	ND	NA	NA
DL3-SD-LOC002-0-061214 (C0226987 Spk H, 800 ppb Spike)	800	ND	NA	NA
DL3-SD-LOC003-0-061214 (C0226988 Spk I, 2.0 ppb Spike)	2.0	ND	1.91	96
DL3-SD-LOC003-0-061214 (C0226988 Spk J, 40 ppb Spike)	40	ND	NA	NA
DL3-SD-LOC003-0-061214 (C0226988 Spk K, 800 ppb Spike)	800	ND	NA	NA
DL2-SD-LOC001-0-061214 (C0226989 Spk C, 2.0 ppb Spike)	2.0	ND	2.17	109
DL2-SD-LOC001-0-061214 (C0226989 Spk D, 40 ppb Spike)	40	ND	NA	NA
DL2-SD-LOC001-0-061214 (C0226989 Spk E, 800 ppb Spike)	800	ND	NA	NA
DL2-SD-LOC002-0-061214 (C0226990 Spk F, 2.0 ppb Spike)	2.0	ND	2.21	111
DL2-SD-LOC002-0-061214 (C0226990 Spk G, 40 ppb Spike)	40	ND	NA	NA
DL2-SD-LOC002-0-061214 (C0226990 Spk H, 800 ppb Spike)	800	ND	NA	NA
DL2-SD-LOC003-0-061214 (C0226991 Spk I, 2.0 ppb Spike)	2.0	ND	2.04	102
DL2-SD-LOC003-0-061214 (C0226991 Spk J, 40 ppb Spike)	40	ND	NA	NA
DL2-SD-LOC003-0-061214 (C0226991 Spk K, 800 ppb Spike)	800	ND	NA	NA
DBC-SD-LOC001-0-061214 (C0226992 Spk C, 2.0 ppb Spike)	2.0	2.36	4.74	119
DBC-SD-LOC001-0-061214 (C0226992 Spk D, 40 ppb Spike)	40	2.38	NA	NA
DBC-SD-LOC001-0-061214 (C0226992 Spk E, 800 ppb Spike)	800	2.36	NA	NA

ND = Not detected at or above the acceptable LOQ reported in Table III.

NA = Not applicable. This matrix spike concentration not used to assess the accuracy for this analyte.

Note: Since this summary table shows rounded results, recovery values may vary slightly from the values in the raw data.

**Table VI. Matrix Spike Recovery Summary of PFOA in Sediment
Samples (continued)**

Sample Description	Amount Spiked (ng/g)	Amt Found in Sample (ng/g)	C8 Acid PFOA Perfluorooctanoic Acid	
			Amount Recovered (ng/g)	Recovery (%)
DBC-SD-LOC002-0-061214 (C0226993 Spk F, 2.0 ppb Spike)	2.0	2.19	4.04	93
DBC-SD-LOC002-0-061214 (C0226993 Spk G, 40 ppb Spike)	40	2.19	NA	NA
DBC-SD-LOC002-0-061214 (C0226993 Spk H, 800 ppb Spike)	800	2.19	NA	NA
DBC-SD-LOC003-0-061214 (C0226994 Spk I, 2.0 ppb Spike)	2.0	1.60	3.53	97
DBC-SD-LOC003-0-061214 (C0226994 Spk J, 40 ppb Spike)	40	1.60	NA	NA
DBC-SD-LOC003-0-061214 (C0226994 Spk K, 800 ppb Spike)	800	1.60	NA	NA
DOU-SD-LOC001-0-061213 (C0226995 Spk C, 2.0 ppb Spike)	2.0	26.5	NA	NA
DOU-SD-LOC001-0-061213 (C0226995 Spk D, 40 ppb Spike)	40	26.5	67.5	103
DOU-SD-LOC001-0-061213 (C0226995 Spk E, 800 ppb Spike)	800	26.5	NA	NA
DOU-SD-LOC002-0-061213 (C0226996 Spk F, 2.0 ppb Spike)	2.0	4.93	NA	NA
DOU-SD-LOC002-0-061213 (C0226996 Spk G, 40 ppb Spike)	40	4.93	49.5	111
DOU-SD-LOC002-0-061213 (C0226996 Spk H, 800 ppb Spike)	800	4.93	NA	NA
DOU-SD-LOC003-0-061213 (C0226997 Spk I, 2.0 ppb Spike)	2.0	6.95	NA	NA
DOU-SD-LOC003-0-061213 (C0226997 Spk J, 40 ppb Spike)	40	6.95	47.6	102
DOU-SD-LOC003-0-061213 (C0226997 Spk K, 800 ppb Spike)	800	6.95	NA	NA
DL1-SD-LOC001-0-061213 (C0226998 Spk C, 2.0 ppb Spike)	2.0	0.286	2.58	116
DL1-SD-LOC001-0-061213 (C0226998 Spk D, 40 ppb Spike)	40	0.286	NA	NA
DL1-SD-LOC001-0-061213 (C0226998 Spk E, 800 ppb Spike)	800	0.286	NA	NA
DL1-SD-LOC002-0-061213 (C0226999 Spk F, 2.0 ppb Spike)	2.0	0.352	2.59	112
DL1-SD-LOC002-0-061213 (C0226999 Spk G, 40 ppb Spike)	40	0.352	NA	NA
DL1-SD-LOC002-0-061213 (C0226999 Spk H, 800 ppb Spike)	800	0.352	NA	NA

ND = Not detected at or above the acceptable LOQ reported in Table III.

NA = Not applicable. This matrix spike concentration not used to assess the accuracy for this analyte.

Note: Since this summary table shows rounded results, recovery values may vary slightly from the values in the raw data.

Table VI. Matrix Spike Recovery Summary of PFOA in Sediment Samples (continued)

Sample Description	Amount Spiked (ng/g)	Amt Found in Sample (ng/g)	C8 Acid PFOA Perfluorooctanoic Acid	
			Amount Recovered (ng/g)	Recovery (%)
DL1-SD-LOC003-0-061213 (C0227000 Spk I, 2.0 ppb Spike)	2.0	ND	2.44	122
DL1-SD-LOC003-0-061213 (C0227000 Spk J, 40 ppb Spike)	40	ND	NA	NA
DL1-SD-LOC003-0-061213 (C0227000 Spk K, 800 ppb Spike)	800	ND	NA	NA
DMC-SD-LOC001-0-061213 (C0227001 Spk C, 2.0 ppb Spike)	2.0	0.266	2.39	106
DMC-SD-LOC001-0-061213 (C0227001 Spk D, 40 ppb Spike)	40	0.266	NA	NA
DMC-SD-LOC001-0-061213 (C0227001 Spk E, 800 ppb Spike)	800	0.266	NA	NA
DMC-SD-LOC002-0-061213 (C0227002 Spk F, 2.0 ppb Spike)	2.0	0.284	2.52	112
DMC-SD-LOC002-0-061213 (C0227002 Spk G, 40 ppb Spike)	40	0.284	NA	NA
DMC-SD-LOC002-0-061213 (C0227002 Spk H, 800 ppb Spike)	800	0.284	NA	NA
DMC-SD-LOC003-0-061213 (C0227003 Spk I, 2.0 ppb Spike)	2.0	0.310	2.48	109
DMC-SD-LOC003-0-061213 (C0227003 Spk J, 40 ppb Spike)	40	0.310	NA	NA
DMC-SD-LOC003-0-061213 (C0227003 Spk K, 800 ppb Spike)	800	0.310	NA	NA
DAA-SD-LOC006-0-061215 (C0227632 Spk C, 2.0 ppb Spike)	2.0	32.6	NA	NA
DAA-SD-LOC006-0-061215 (C0227632 Spk D, 40 ppb Spike)	40	32.6	77.8	113
DAA-SD-LOC006-0-061215 (C0227632 Spk E, 800 ppb Spike)	800	32.6	NA	NA
DAA-SD-LOC005-0-061215 (C0227633 Spk F, 2.0 ppb Spike)	2.0	34.6	NA	NA
DAA-SD-LOC005-0-061215 (C0227633 Spk G, 40 ppb Spike)	40	34.6	69.6	88
DAA-SD-LOC005-0-061215 (C0227633 Spk H, 800 ppb Spike)	800	34.6	NA	NA
DAA-SD-LOC004-0-061215 (C0227634 Spk I, 2.0 ppb Spike)	2.0	169	NA	NA
DAA-SD-LOC004-0-061215 (C0227634 Spk J, 40 ppb Spike)	40	169	NA	NA
DAA-SD-LOC004-0-061215 (C0227634 Spk K, 800 ppb Spike)	800	169	731	70

ND = Not detected at or above the acceptable LOQ reported in Table III.
 NA = Not applicable. This matrix spike concentration not used to assess the accuracy for this analyte.
 Note: Since this summary table shows rounded results, recovery values may vary slightly from the values in the raw data.

Table VI. Matrix Spike Recovery Summary of PFOA in Sediment Samples (continued)

Sample Description	Amount Spiked (ng/g)	Amt Found in Sample (ng/g)	C8 Acid PFOA Perfluorooctanoic Acid	
			Amount Recovered (ng/g)	Recovery (%)
DAA-SD-LOC003-0-061215 (C0227535 Spk C, 2.0 ppb Spike)	2.0	50.3	NA	NA
DAA-SD-LOC003-0-061215 (C0227535 Spk D, 40 ppb Spike)	40	50.3	102	129
DAA-SD-LOC003-0-061215 (C0227535 Spk E, 800 ppb Spike)	800	50.3	NA	NA
DAA-SD-LOC002-0-061215 (C0227535 Spk F, 2.0 ppb Spike)	2.0	2.16	4.15	100
DAA-SD-LOC002-0-061215 (C0227535 Spk G, 40 ppb Spike)	40	2.16	NA	NA
DAA-SD-LOC002-0-061215 (C0227535 Spk H, 800 ppb Spike)	800	2.16	NA	NA
DAA-SD-LOC001-0-061215 (C0227536 Spk I, 2.0 ppb Spike)	2.0	2.20	4.65	123
DAA-SD-LOC001-0-061215 (C0227536 Spk J, 40 ppb Spike)	40	2.20	NA	NA
DAA-SD-LOC001-0-061215 (C0227536 Spk K, 800 ppb Spike)	800	2.20	NA	NA
			Average:	106
			Standard Deviation:	12

ND = Not detected at or above the acceptable LOQ reported in Table III.

NA = Not applicable. This matrix spike concentration not used to assess the accuracy for this analyte.

Note: Since this summary table shows rounded results, recovery values may vary slightly from the values in the raw data.

Table VII. Total Percent Solids for Sediment Samples

Exygen ID	Client Sample ID	Total Percent Solids (%)
C0226986	DL3-SD-LOC001-0-061214	65.16
C0226987	DL3-SD-LOC002-0-061214	43.41
C0226988	DL3-SD-LOC003-0-061214	46.81
C0226989	DL2-SD-LOC001-0-061214	48.16
C0226990	DL2-SD-LOC002-0-061214	46.49
C0226991	DL2-SD-LOC003-0-061214	47.72
C0226992	DBC-SD-LOC001-0-061214	45.84
C0226993	DBC-SD-LOC002-0-061214	47.17
C0226994	DBC-SD-LOC003-0-061214	43.10
C0226995	DOU-SD-LOC001-0-061213	67.54
C0226996	DOU-SD-LOC002-0-061213	57.12
C0226997	DOU-SD-LOC003-0-061213	78.34
C0226998	DL1-SD-LOC001-0-061213	53.47
C0226999	DL1-SD-LOC002-0-061213	45.02
C0227000	DL1-SD-LOC003-0-061213	78.98
C0227001	DMC-SD-LOC001-0-061213	65.71
C0227002	DMC-SD-LOC002-0-061213	45.17
C0227003	DMC-SD-LOC003-0-061213	44.17
C0227532	DAA-SD-LOC006-0-061215	72.89
C0227533	DAA-SD-LOC005-0-061215	71.69
C0227534	DAA-SD-LOC004-0-061215	30.49
C0227535	DAA-SD-LOC003-0-061215	44.39
C0227536	DAA-SD-LOC002-0-061215	71.91
C0227537	DAA-SD-LOC001-0-061215	56.02