

AR 226-1876

**Biennial Report for the Manufacture of APFO
Calendar Years of 2002 and 2003
DuPont Company – Fayetteville Works**

Note: The information contained in this document is submitted voluntarily and may be subject to future revision and/or modification.

CONFIDENTIAL BUSINESS INFORMATION IS REDACTED

This report is submitted pursuant to commitments made by DuPont in a March 14, 2003, Letter of Intent (LOI) to Stephen L. Johnson, Assistant Administrator, USEPA, entitled "Voluntary Actions to Evaluate and Control Emissions of Ammonium Perfluorooctanoate (APFO)".

Pursuant to Addendum III of this LOI, provision 5, a facility manufacturing APFO is required to, beginning in the year after production commences, and continuing for five consecutive years following, for the prior calendar year, report to EPA biennially the following information on a calendar year basis:

1. Annual production volume of APFO;
2. Emissions per facility (air, water, waste);
3. Summary report of groundwater monitoring results;
4. Summary report of surface water monitoring results;
5. Workplace industrial hygiene monitoring; and
6. Summary data on employee blood monitoring results.

This report provides the above information for calendar years 2002 and 2003. Note that while APFO is the substance produced at the facility, the substance measured by analytical techniques is the perfluorooctanoate anion (PFO⁻), which is reported herein as perfluorooctanoic acid (PFOA).

General Facility Information

Company Name: E. I. du Pont de Nemours and Company

Site Location: Site where APFO is manufactured:
DuPont Company – Fayetteville Works
22828 NC Highway 87 W
Fayetteville, NC 28306-7332

Company Sanitized

Confidential Business Information Redacted

1. Annual production volume of APFO

The DuPont Company – Fayetteville Works' APFO Manufacturing Facility commenced production in late 2002. The following table shows the total production volume of APFO for calendar years 2002 and 2003.

Calendar Year	APFO Production
2002	[]
2003	[]

2. Emissions per facility (air, water, waste);

The estimated quantity of air emissions to the atmosphere from the APFO manufacturing facility at Fayetteville was determined using engineering calculations. In addition, stack testing performed in 2003 showed PFOA air emissions to be less than the analytical detection limit. Annually a sample of the site's surface water discharge to the Cape Fear River is analyzed for PFOA; however that monitoring shows the PFOA to be less than the quantification limit of the analytical method. The waste emissions are the quantities of PFOA, on a dry basis, that are estimated to have been present in the various solid waste streams transferred from the Fayetteville Works site. The following table gives the estimated emissions of PFOA to specific media from the Fayetteville Works during the subject years:

Emission Media	2002	2003
Air	17 lb.	22 lb.
Water	Note 1	NQ
Waste	35 lb.	3,236 lb.

Note 1: Due to the late start-up of the APFO Manufacturing Facility and the short duration of the 2002 production run, no surface water monitoring occurred in 2002.

NQ = less than the practical analytical quantification limit of 0.05 µg/L

3. Summary report of groundwater monitoring results

In 2002, the DuPont Company – Fayetteville Works performed air dispersion modeling to determine the most probable locations for the atmospheric deposition of PFOA from the new manufacturing facility. New monitoring wells were installed in the surficial aquifer at

the two locations predicted by the modeling.

In 2003, the Fayetteville Works site began annual monitoring of the groundwater for PFOA. The monitoring involved the two newly installed wells described above, and included two existing monitoring wells.

Groundwater monitoring conducted in January and March 2003 showed no quantifiable levels of PFOA in the two new wells and the existing well at the Old Biosludge Lagoon (SMU-01, SWM-02, and MW-1S respectively). These monitoring events did indicate levels of PFOA above the quantification limit at the existing well located upgradient of the Nafion® Common Sump.

Following discussions with the North Carolina Division of Waste Management, the 2004 groundwater monitoring was expanded to include three existing wells downgradient of the Nafion® Common Sump area. The 2004 monitoring results were virtually identical to those in 2003, and the three above-mentioned downgradient wells showed PFOA concentrations of 0.303 µg/L, 1.530 µg/L, and 0.123 µg/L respectively. It is believed that the detected PFOA is a result of a historical release originating from the Nafion® manufacturing area's common process wastewater sump. That source has been eliminated from the site.

The following table shows the groundwater monitoring analytical results for 2003 and 2004:

Sample Name (Monitoring Well Description)	Monitoring Date	PFOA (µg/L)
SMU-01 (New well on River Pump Road; East of APFO Facility)	01/27/03	<0.01
	03/27/03	<0.01
	02/04/04	<0.01
SMU-02 (New well at Construction Gate entrance; Southwest of APFO Facility)	01/27/03	<0.01
	03/27/03	<0.01
	02/04/04	<0.01
MW-1S (Existing well at Old Biosludge Lagoon SWMU by Central WWTP; South of APFO Facility)	01/28/03	<0.05
	01/28/03	<0.05
	03/27/03	<0.05
	02/04/04	<0.05
NAF-01 (Existing well upgradient of Nafion® Common Sump; Southeast of APFO Facility)	01/27/03	0.065
	03/27/03	0.068
	03/27/03	0.063
	02/04/04	0.062
NAF-02 (Existing well downgradient of Nafion® Common Sump; Southeast of APFO Facility)	02/04/04	0.303
NAF-03 (Existing well downgradient of Nafion® Common Sump; Southeast of APFO Facility)	02/04/04	1.530
NAF-04 (Existing well downgradient of Nafion® Common Sump; Southeast of APFO Facility)	02/04/04	0.123

4. Summary report of surface water monitoring results

As reported in Item 1 above, the DuPont Company – Fayetteville Works annually monitors for PFOA in the site's surface water discharge to the Cape Fear River. The monitoring conducted in both 2003 and 2004 shows the PFOA to be less than the quantification limit of the analytical method, or less than 0.05 µg/L. No surface water monitoring occurred in 2002 due to the late start-up of the APFO Manufacturing Facility and the short duration of the 2002 production run.

5. Workplace industrial hygiene monitoring

The DuPont Company – Fayetteville Works began workplace monitoring for PFOA with the start up of the APFO Manufacturing Facility in 2002. The workplace monitoring in 2002 and 2003 consisted of stationary area monitors that sampled the building air space for twelve (12) continuous hours. These sampled locations are limited access restricted areas in which

personnel wear both respiratory and dermal personnel protection. The analytical results reported in the following table are the 12-hour time weighted average (TWA) PFOA concentration values.

Year	Sample Type	Number of Samples	Minimum Conc. (mg/m ³)	Maximum Conc. (mg/m ³)	Average Conc. (mg/m ³)
2002	Area 12-hr	4	0.008	0.024	0.017
2003	TWA	105	0.000	0.292	0.010

mg/m³ = milligrams per cubic meter

6. Summary data on employee blood monitoring results

At the DuPont Company – Fayetteville Works, blood serum levels of PFOA have been measured since 2002. A summary of results of employees with identified APFO exposure potential in 2002 and 2003 is presented in the table below. The entire data set of blood concentrations is available upon request.

Year	Number of Samples	Minimum Concentration (ppm)	Maximum Concentration (ppm)	Average Concentration (ppm)
2002	17	0.004	0.020	0.011
2003	44	0.008	2.280	0.217

ppm = parts per million