FC Manufacturing Update
May 26, 2005

• PFOS / PFOA sale / use status

• Medical Surveillance
  – PFOA Biological Limit Value (BLV)
  – PFBS BLV development

• Emissions / Exposure Management Projects
  – Defining level of care across manufacturing

• FC Technology EHS&R Management
Decatur
PFOS/PFOA Plant Emissions & Monitoring

Activity
*FC-808 (Carbowax Polymer)
* Non-production Sources??

Products

Releases (2004)
- Air (small)
- Water 1,759 lb/yr PFOA
- Water 373 lb/yr PFOS
- Waste
  - Landfill: unknown
  - Incineration: (small)

*Site Investigation & Remediation
*PFOA Exposure Assessment
Decatur
(continued)

- Results
  - City of Decatur water supply – NDs (<0.025 ppb)
  - Tennessee River, downstream
    - PFOA: ~0.2 ppb
    - PFOS: 0.2-0.3 ppb
  - West Morgan/East Lawrence water supply
    - PFOA: 0.1 ppb (raw), 0.09 ppb (finished)
    - PFOS: 0.09 ppb (raw), 0.08 ppb (finished)
  - City of Florence water supply
    - PFOA: 0.057 ppb (raw), 0.055 ppb (finished)
    - PFOS: not analyzed
Cottage Grove
PFOS/PFOA Plant Emissions & Monitoring

**Activity**
*FC-98 (finished goods sale)*
*DS-2022 Production (contains FC-431)*
*Non-production Sources (groundwater)*

**Products**

**Releases (2004)**
- Air
- Water 390 lb/yr PFOA
  91 lb/yr PFOS
- Waste

**Site Investigation & Remediation**
**Activity**
*Lightwater Packaging*
*FC-77 Production (C₈ Acid process)*
*FC-128 (polymerization emulsifier)*
*APFO Salt Purification*
*Dyneon Work-ups (APFO-derived)*
*C8 Curative use (3 elastomers)*
*Non-production Sources??*

**Products**

**Releases (2004)**
- **Air:** Insignificant
- **Water:** 2,076 lb/yr PFOA
  429 lb/yr PFOS
- **Waste:** All incinerated

**Soil & Groundwater Descriptive Investigation**
Estimated Gendorf APFO Use pattern - 2005

APFO for polymerization

Gendorf Polymer Manufacturing

Recycle Stream:
~28,000 kg (~80%)

Total throughput: ~36,000 kg

APFO in Dispersions: ~2,000 kg

Emissions
Air: ~300 kg
Water: ~2,400 kg
Incinerated/landfilled:
~4,000 kg
APFO Containment System

Schematic

Dyneon Virgin APFO-Plant

Process Off-Gas

APFO Removal / Recovery

Dynecon Fluoropolymer Manufacturing Process

Product (Dispersion)

APFO Removal / Recovery

Virgin APFO from 3M (Antwerp)

Process Waste Water

APFO Content < 10 ppm

APFO Reuse

Waste Water Treatment Gendorf Site

Dynecon APFO Recycling-Plant

Recovery Rate > 90%

- in operation
- start up 2004
- shut down 2004

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2033.0007
APFO Mass-Balance - Gendorf

APFO Usage versus Recycling Gendorf

constant usage assumed

Net APFO Loss from Plant Inventory
Continued rationalization of products and processes
- EOY 2005 is target for exiting most applications
- Exceptions:
  • FC-808 (Decatur)
  • FC-77 process (Antwerp)
  • APFO use (Gendorf)

Initiating project to address remaining factory exposure and emissions sources