

Ohio EPA

December 2, 2003

ASH028045

EXP015820

Objectives

- Provide grounding/update on recent activities
- Solicit input on upcoming activities

Agenda

- Water
 - GIST Final Report Recommendations
 - Proposed MOU Based on GIST Recommendations
 - OEPA Requests
 - DuPont Suggested Modifications
- Air
 - Review Recent Model Results
 - Air Permit Update
 - Additional Reduction Programs
 - Air Model Verification Plan

Proposed Memorandum of Understanding-West Virginia DEP and Ohio EPA

Summary of Activities

December 2, 2003

ASH028048

EXP015823

GIST Report Recommendations

Summary

- Final GIST report issued August, 2003
- Continued quarterly/annual monitoring of certain Ohio River public water systems
- Quarterly/annual monitoring of private water supplies (10 locations) in West Virginia and Ohio
 - West Virginia: Wash Works 0-2 mile radius and Dry Run Landfill/Letart Landfill 1-mile radius
 - Ohio: Wash Works 0-2 mile radius
 - List to include wells, springs, cisterns
- Conduct C8 monitoring at all DuPont Washington Works facilities according to applicable West Virginia Solid Waste/NPDES, NPDES, and EPA HSWA (Corrective Action) permit requirements

Proposed MOU

-Administrative Details

- **Parties:**

- West Virginia Department of Environmental Protection
- West Virginia Department of Health and Human Resources
- Ohio Environmental Protection Agency
- E.I. du Pont de Nemours & Company

- **Objectives:**

- Continued monitoring and reporting of C8 concentrations in groundwater and surface water
- Implement recommendations of the GIST concerning continued sampling and monitoring in WV & Ohio (“in and around the facilities”)
- Begin first quarter 2004

Proposed MOU -Public Water System Sampling

- **WV Public Water Systems:**
 - Quarterly sampling 1Q2004-4Q2005 at Lubeck PSD, DuPont WW, and GE production wells and finished water (if applicable)
 - Annual sampling 2004-2005 at Blennerhassett Island State Park, Mason Cty. PSD, and Racine L&D
- **Ohio Public Water Systems:**
 - Quarterly sampling 1Q2004-4Q2005 at Little Hocking Water Association production wells and finished water
 - Annual sampling of Tappers Plains-Chester PWS

Proposed MOU

-Private Water Supply Sampling

- **West Virginia:**
 - Quarterly sampling for 1 year beginning 1Q2004 at locations within Wash Works facility 0-2 mile radius
 - 10 samples with at least 1 sample being from the following locations with detectable levels of C8:
 - Drinking water wells
 - Drinking water springs
 - Non-drinking water wells
 - Springs and cisterns
 - One well and spring used for cattle where prior sampling detected C8 concentrations above 5 ug/L
 - Further sampling/frequency beyond 4Q2004 will be evaluated by parties to the MOU

Proposed MOU

-Private Water Supply Sampling

- **Ohio:**
 - Quarterly sampling for 1 year beginning 1Q2004 at locations within Wash Works facility 0-2 mile radius
 - 10 samples with at least 1 sample being from the following locations with detectable levels of C8:
 - Drinking water wells
 - Drinking water springs
 - Non-drinking water wells
 - Springs and cisterns.
 - Further sampling/frequency beyond 4Q2004 will be evaluated by parties to the MOU

OEPA Request for Additional Investigation

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EXP015829

OEPA Request for Additional Investigation

- OEPA letter to DuPont dated October 23, 2003
- Objective:
 - Better understand the range of C8 concentrations in surface soil and shallow groundwater, and how these concentrations change over time

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Proposed Additional Investigation in Ohio -Little Hocking and Porterfield Areas

- Establish 8 locations for surface soil sampling in these areas based on results of air and groundwater modeling
- Install 4 new shallow groundwater monitoring wells within the LHW A to monitor shallowest portion of aquifer. Sample quarterly in conjunction with production well sampling.

Proposed Additional Investigation on Ohio -Little Hocking and Porterfield Areas DuPont Suggested Modifications

- Establish 8 locations for surface soil sampling in these areas based on results of air and groundwater modeling:
 - Two sampling events will be conducted, one directly after a >0.5 inch rain event, the other after 5 days of no precipitation. During each event, the following samples will be collected:
 - Foliage layer sample (grass and root zone)
 - Surface soil sample (depth interval to be determined)
- Install 4 new shallow groundwater monitoring wells within the LHWFA to monitor shallowest portion of aquifer. Sample quarterly in conjunction with production well sampling.

Path Forward

- Execute MOU covering GIST recommendations
- Gain agreement on OEPA proposal and DuPont suggestions
- Propose the additional testing (OEPA proposal and DuPont suggestions) at the ECA process on December 9

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Air Topics

- Modeling Results Sept 2002 - Aug 2003
- Air Permit Update
- Additional Reduction Programs
- Air Modeling Verification Project
 - Phase I: Fence Line Monitoring
 - Phase II: Community Monitoring

Modeling Methodology

- EPA's Industrial Source Complex 3 (ISCST3) Model
- Followed procedures in EPA's Guideline on Air Quality Models (Appendix W)
- BPIP model to evaluate building downwash effects
- Terrain elevations imported from USGS electronic file
- Receptor grid with 100-meter spacing
- On-site met data (1996)
- Rural dispersion coefficients

Modeling Inputs - Stack Parameters

TIE&TIF 699	442091	4346836	4	170	27.9	124
THI 652	441920	4346767	1.96	70	54.1	200
THG 658	441923	4346756	1.63	68	22.4	300
CDT 231	441953	4346766	0.67	81	28.4	130
CDW 232	441952	4346776	0.67	93	23.6	130
CEH 242	441954	4346741	0.5	114.5	106.1	200
CFS 274	441787	4346744	0.69	110	44.6	255
CFK 268	441774	4346753	0.27	72.5	29.1	110
TIV 697	442129	4346836	1.67	45	15.2	66
TIF 694	442104	4346822	1.67	45	15.2	66
RO22EEF6	442086	4346824	2.5	47	30	80
RO22EEF86	442069	4346627	2	49	40	80
RO22EEF87	442058	4346634	2	49	10	80
RO22EEF89	442063	4346635	2	49	20	80

Emissions from Sept 2002- Aug 2003 = 7,120 lb/yr

Summary of Modeling Results

Emissions Scenario	Maximum Annual Average Concentration (ug/m3)	Maximum Annual Average Concentration in Ohio (ug/m3)
Year 2000 Actual	2.67	0.87
Year 2002 Actual	1.36	0.36
Sept 2002 – Aug 2003	0.86	0.18

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September 2002 - August 2003 Emissions



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Air Permit Status

- Four permits cover APFO sources
- Each permit has been modified to place APFO emission limits on each emitting unit
- Emission limits are hourly and annual
- Emission limits were confirmed via air dispersion modeling to assure annual ambient air concentrations below 1 ug/m³ at fence line
- Future changes must not exceed the same fence line limit, demonstrated by modeling
- Permit modifications effective November 26, 2003
- Emission limits will be included in Title V permit

Additional Air Reduction Programs

- Continuing operational upgrades to five existing scrubbers
 - instrumentation, interlocks, operating conditions
- May, 2004 startup of additional filter scrubbers on four existing scrubbers
 - builds on technology recently developed on one scrubber at Washington Works
 - testing of potentially more efficient filter media

Air Dispersion Modeling Verification Study

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EXP015841

Objective

Compare results from ambient air sampling and air dispersion modeling to understand how modeling predictions relate to measured ambient air concentrations

Verification Study Scope

- Air Sampling Program
- Analytical Methods
- Modeling
- Analysis of Results

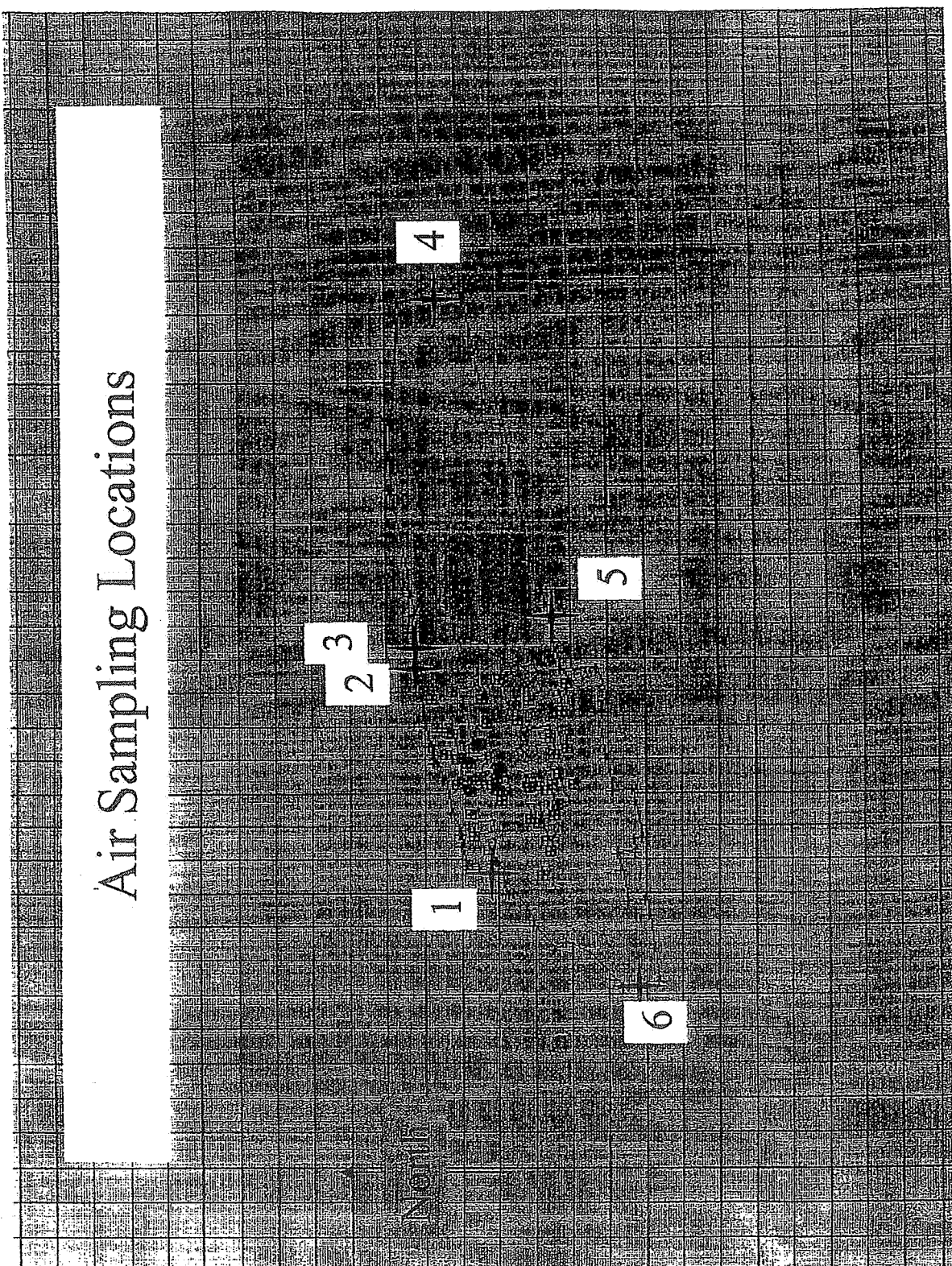
Conducted in Two Phases

- Phase I: Verification of modeling at facility fence line
- Phase II: Verification of modeling in community

Phase I: Air Sampling Locations

- Simultaneous coverage of all 4 major wind directions (N, S, E, W)
- Capture point of predicted maximum concentration from modeling
- Include co-located samplers at predicted maximum
- Total of six locations

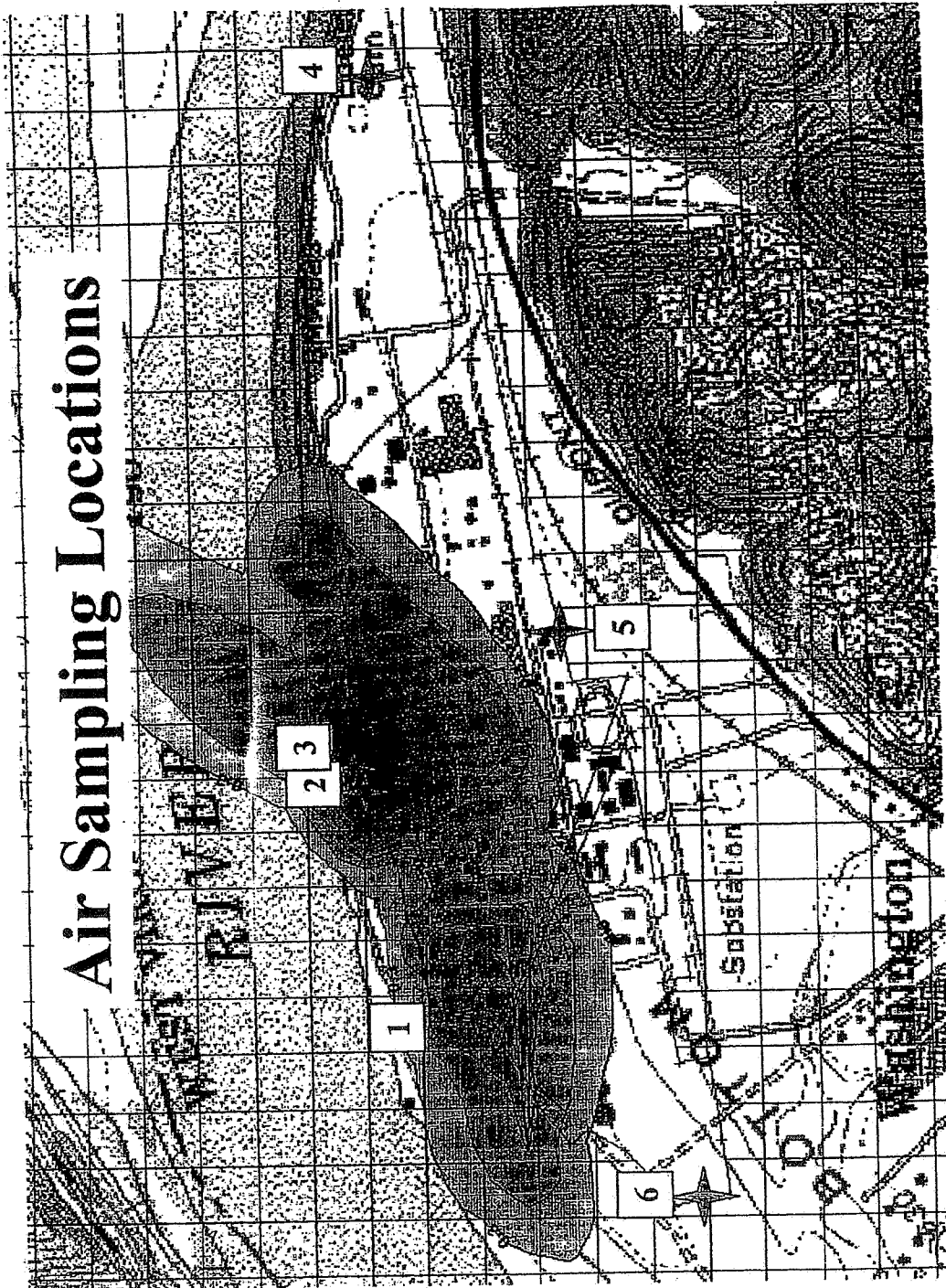
Air Sampling Locations



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Air Sampling Locations



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Air Sampling Strategy

- Measure ambient air levels
- 24-hour sampling duration
- Seven (7) sampling events scheduled over 6 weeks
- Vary day of week to capture variations in daily operations (none expected) and variations in meteorology
- Record site-specific meteorological and operational data

Monitoring Strategy: Samples taken every 6 days for 6 weeks.

MONTH 1

1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

MONTH 2

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24
25	26	27	28
29	30		

Total Samples

- (1) field blank per event
- (5) primary samples per event
- (1) duplicate sample per event*

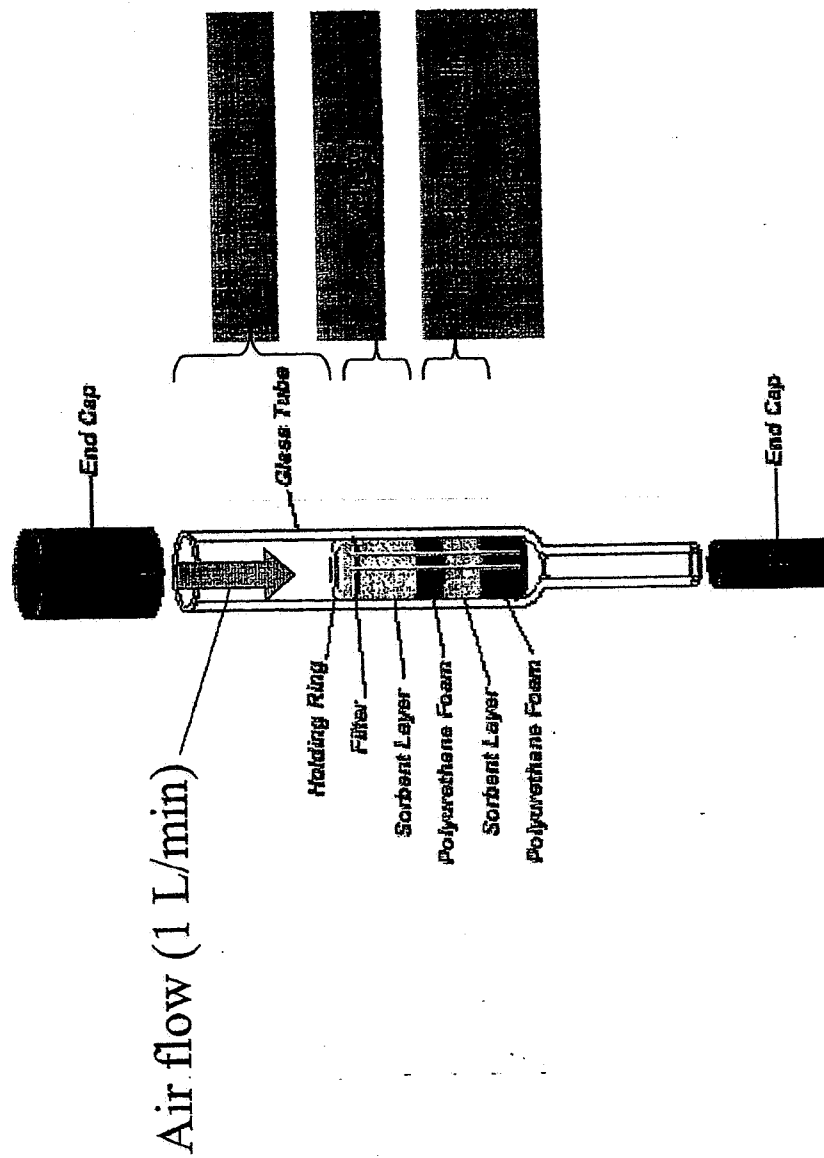
- (7) samples x (7) sampling events = 49 total samples

* Sample location 3 is co-located with location 2 and serves as a duplicate sample

Equipment

- “Sorbent” sampling method to capture PFOA on ion-exchange media
- OSHA Versatile Sampling tube (OVS)
- Captures particles and vapors
- Remote power source will be provided
- Weatherproof stations for sampling equipment

OVS Tube



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EXP015852

Analytical Method

- Validated method being used
- Acetone extraction followed by liquid chromatography/mass spectrometry (LC/MS)
- Quantification limit of 0.1 ug/m³
- Detection limit of 0.05 ug/m³

Modeling Program

- Using U.S. EPA ISCST3 Model
- Model will simulate actual field conditions
 - Site-specific surface meteorological data (wind speed and direction, temp, stability)
 - Off-site upper air meteorological data
 - Emissions data
 - 24-hour averaging time
 - Predictions at actual height and location of air monitoring intake

Comparison of Results

- Comparing 35 pairs of measured and modeled data
 - (5) primary sampling points x (7) sampling events
- Will use statistical tools to evaluate correlation/differences between measured and modeled data

Phase II: Verification of Modeling in Community

- | • Sampling and analytical protocol same as Phase 1
- | • Locations will be selected to:
 - | – Correspond with a range of predicted concentrations
 - | – Ensure security of sample
- | • Sampling frequency
 - | – Expect 8 events at 5 locations during a six week period

Summary of Path Forward Items

- Water
 - Execute MOU covering GIST recommendations
 - Gain agreement on OEPA proposal and DuPont suggestions
 - Propose the additional testing at the ECA process on December 9
- Air
 - Conclude Phase I monitoring, modeling, and evaluation - 1Q04
 - Begin Phase II effort - 2Q04