

ATSDR Record of Activity

UID #: gap6, wgs5 Date: 11/27/2006 Time: 1:00 pm
Site Name: Fire/ explosion at 126 Water Street
City: Danvers County: Essex State: MA
CERCLIS #: n/a Cost Recovery #: 1#MA

Site Status: Emergency Response

Activities: Health Consultation-Health Implications

Requestor and Affiliation: (EPA) Alex Sherrin, phone (617) 918-1252

Address: 1 Congress Street, Suite 1100

City: Boston State: MA Zip: 02114

HC ASA Category: Health Implications

Statement of Request:

Alex Sherrin, (EPA On-Scene Coordinator) requested a public health determination for air sampling data being collected at various locations near the fire/explosion.

Narrative Summary:

At 2:45 am EST on November 22, 2006, a fire and explosion occurred at 126 Water Street. Two companies are located at 126 Water Street in Danvers, Massachusetts - Arnel Co. Inc. and CAI Inc. The Arnel Company's Standard Industrial Classification code is 3479 ("metal coating & allied service"). The CAI company has a SIC code of 2893 ("printing ink"). The chemical inventory for both companies combined consists of: nitrocellulose (CASN 9004-70-0), 1-propyl alcohol (normal propyl alcohol) (CASN 71-23-8), ethyl alcohol (CASN 64-17-5), ethylene glycol monopropyl ether (CASN 2807-30-9), heptane (CASN 142-82-5), isopropyl alcohol (CASN 67-63-0), n-propyl acetate (CASN 109-60-4), toluene (CASN 108-88-3), propane (CASN 74-98-6), ammonium chloride (CASN 12125-02-9), acetone (CASN 67-64-1), n-butyl acetate (CASN 123-86-4), xylenes (CASN 1330-20-7), ethyl acetate (CASN 141-78-6), methyl ethyl ketone (CASN 78-93-3), and methyl isobutyl ketone (CASN 108-10-1).

Immediately after the explosion and fire, seventy-five homes were evacuated. These homes were evacuated due to physical hazards and potential chemical exposures. The New England School for the Deaf (also housing blind and elderly residents) was evacuated.

EPA initially deployed real-time monitoring equipment which detects volatile organic compounds in the ppm range. The real-time devices included Photo Ionization Detectors

and Flame Ionization Detectors. Both devices are non-specific for volatile organic compounds and have detection limits above a level of concern for long-term exposures.

ATSDR requested chemical-specific analysis of air samples be conducted, to determine public health implication of air contaminants and whether the evacuation order can be lifted (based on chemical exposures).

Discussion/Toxicological Implications:

The potential exposure pathways for individuals returning back to their homes include the inhalation of contaminated air. The U.S. EPA deployed four Summa canisters in the community near the perimeter of the scene of the emergency response. One Summa canister was located approximately 150 feet from the site of the explosion/fire. Two Summa canisters were located approximately 400 feet and one canister 600 feet from the site of the explosion/fire. The Summa canisters were spatially distributed in the residential area. Samples were collected using a 4-minute draw at each location. The four locations are listed below:

Time Deployed	Sample Name	Location	Summa Canister Serial Number	Sample Initial phi/Final phi
1350	Summa-01	3 Riverside Drive	000023	> - 30 psi/0 phi
1400	Summa-02	25 Riverside Drive	000026	> - 30 phi/<5 phi
1405	Summa-03	27 Bates Street	000010	> - 30 phi/<5 phi
1414	Summa-04	1 Bates Street	000029	> - 30 phi/<5 phi

The Summa canisters were analyzed by gas chromatography/ion trap mass spectroscopy (GC/MS). All samples were received and logged in by the EPA laboratory and analyzed according to the EPA New England Laboratory Standard Operating Procedures. The results are presented below along with the respective chronic exposure-based health comparison values.

Chemical	Maximum Concentration ppb/v	Comparison Values (ppb)
Benzene	0.22	3 *
Dichlorodifluoromethane	0.52	36 #
Ethylbenzene	0.46	200 ¶
Hexane	7.7	600 *
m/p-Xylenes	1.7	50 *
Methyl ethyl ketone	1.7	2000 ¶
o-Xylene	0.6	50 *
Styrene	1.7	60 *
Tetrachloroethylene	0.44	40 *
Toluene	7.1	80 *
Trichlorofluoromethane	0.23	130 #

* ATSDR Chronic Minimal Risk Level

EPA Risk Based Concentration

¶ EPA Reference Concentration

All chemicals detected in the air collected by the Summa canisters were well below their respective health comparison values for chronic exposures.

Conclusions:

1.) Ambient air samples collected by EPA during the late afternoon of Wednesday, November 22, demonstrated few detections of contaminants. All results were well below any available chronic exposure-based health guidelines. Based on a review by ATSDR and the Massachusetts Department of Public Health, these data do not present any health concerns (no apparent health hazard) related to chemical exposures to residents returning to the neighborhood impacted by the fire.

Recommendations:

1.) Based on the current data, there is no reason to continue the evacuation order based on chemical exposures.

The conclusions and recommendations presented here are based on the information provided. If additional information becomes available or the situation at the scene changes, these conclusions and recommendations may need to be adjusted appropriately. ATSDR and MDPH are available to answer additional questions or concerns as the need arises.

Preparers:

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William D. Sweet, Ph.D., DABT
ATSDR Region I

Approved by:

Tina Forrester, Ph.D.
Division of Regional Operations
Agency for Toxic Substances and Disease Registry

Signature:

 Date: 12/01/06

PERIMETER SAMPLE LOCATIONS



NOT TO SCALE

