

Health Consultation

DEVELOPMENT OF AMBIENT AIR MONITORING PARAMETERS
DURING REMEDIATION AT THE FORMER
CONNECTICUT DEPARTMENT OF TRANSPORTATION BUS GARAGE

HARTFORD, HARTFORD COUNTY, CONNECTICUT

JANUARY 21, 1999

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

Public Health Service

Agency for Toxic Substances and Disease Registry

Division of Health Assessment and Consultation

Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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HEALTH CONSULTATION

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HARTFORD, HARTFORD COUNTY, CONNECTICUT

Prepared by:

Connecticut Department of Public Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

The conclusions and recommendations in this health consultation are based on the data and information made available to the Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry. The Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry will incorporate additional information if and when received. The incorporation of additional data could change the conclusions and recommendations listed in this document.

Summary

The Connecticut Department of Environmental Protection (CT DEP) requested on June 16, 1998, that [1] the CT Department of Public Health (CT DPH) develop ambient air monitoring action levels for implementation during remediation of contaminated soil at the former Connecticut Department of Transportation (CT DOT) Bus Garage in Hartford, CT. The CT DEP provided environmental sampling data from subsurface soil analysis as an indication of the site contaminants. The purpose of this health consultation was to document the establishment of ambient air action levels for use during remediation activities. Air data collected during excavation of the contaminated soils was also provided for review.

Background and Statement of Issues

The remediation began in early July 1998, which involved the excavation of approximately 500 cubic yards of highly contaminated soil. The soil with the highest contamination levels was transported directly to a waste disposal center in Canada. The remaining soil with lower levels of contamination were stored on-site in double lined roll-off storage units (similar to a large dumpster). The remaining soil was classified as non-hazardous waste and was scheduled for disposal at a municipal Landfill in Connecticut. This entire remediation procedure required approximately three weeks to complete.

History of the Site

The former CT DOT Bus Garage site was formerly a trolley yard during the early 1900's. Buses replaced the trolley as the form of transportation in the 1930's. The former CT DOT Bus Garage site was operated until 1990. After the facility closed, the buildings were demolished. This site will be developed into the Learning Corridor. The development is expected to include several schools, a math and science resource center, a day care facility, a ball field, commercial establishments, and a parking garage. The site is surrounded by Vernon Street on the north, Washington Street on the east, Brownell Street on the south, and Broad Street on the west (see Figure 1).

Site Investigations

The current investigation and remediation efforts are being conducted by the Southside Institutions Neighborhood Alliance (SINA) project. SINA hired an environmental consultant in 1996 to summarize previous environmental investigations and to develop a remediation plan. The

investigations included reports of extensive contamination of the site soils by total petroleum hydrocarbons (TPH) and volatile organic compounds (VOCs). One VOC, (tetrachloroethylene), was detected in the soil at concentrations up to 93,000 parts per billion (ppb). Trichloroethylene and vinyl chloride were also detected in the soil at much lower levels.

Two site visits were conducted by the CT DPH prior to the remediation and during the excavation activities. The first site visit was conducted on Wednesday, July 1, 1998, from 9:00 am - 10:30 am. The CT DPH observed that the site was fully enclosed by a 8 foot high chain linked fence. Located on the site was one pile of TPH contaminated excavation material. This pile was covered with a tarpaulin. Throughout the site were numerous marking poles and various pieces of excavation equipment. The highest levels of tetrachloroethylene contaminated soil were approximately 40 feet from the nearest residential property. The entire area consisted of mud and clay. Several areas contained standing water. All site buildings have been demolished. A security guard is on the site 24 hours every day.

The second site visit was conducted on July 9, 1998, from 8:00 am - 9:00 am. Excavation activities were occurring on site. Air monitoring equipment was observed near the soil excavation zone.

Available Air Monitoring Data During Excavation

The maximum VOC concentrations detected in the soil are listed in Table 1. The VOC which was detected at the highest concentration is tetrachloroethylene. Ambient air monitoring and confirmatory air sampling were conducted during July 9-10, 13-15, 1998. The air monitoring was conducted for VOCs and dust. The results of these air monitoring activities are presented in Table 2.

Table 1
Maximum Soil VOC Concentrations Sampled During
October of 1997 and January of 1998, at the Former
CT DOT Bus Garage site, Hartford [1].

Chemical	Maximum Concentration (ppb)
Tetrachloroethylene	93,000
Trichloroethylene	77
Vinyl chloride	17

ppb = parts per billion

Table 2

Concentration Ranges of VOC and Dust Sampled During July of 1998, at the Former CT DOT Bus Garage site, Hartford [2].

Compound	Concentration Range	units
Dust	0 - 0.1	ug/m ³
VOCs (total)	0 - 0.6	ppm
Tetrachloroethylene	ND	ppm
Vinyl chloride	ND - 0.221	ppm

ppm = parts per million

ug/m³ = micrograms per cubic meter

Discussion

One of the main objectives of the CT DPH involvement with this site was to ensure adequate protection of public health during remediation activities. Since the draft version of this health consultation was released, air monitoring data were provided to the CT DPH for review. These data were evaluated to ensure that the action levels were not exceeded.

The CT DPH developed site-specific inhalation action levels for use at this site. These action levels are to be used as triggers to indicate conditions under which site activities must be altered, as well as the implementation of a contingency plan of action. Two action levels were developed: one for dust, and one for VOCs. The CT DPH evaluated the VOCs and determined that the most toxic constituent of the VOCs was vinyl chloride. Using the maximum concentration detected in the waste, a VOC inhalation action level of 0.5 ppm was derived. Similarly, the dust action level was developed based on the constituents present in the waste. This action level is 0.15 mg/m³. The CT DPH site-specific inhalation action levels were developed to be levels that would not result in any adverse health effect.

During the remedial activities at the former CT DOT Bus Garage site, the ambient air monitoring and confirmatory sampling indicated that levels of dust and VOCs were continuously below the action levels. Consequently, during all phases of this remediation, there were no risks to residents living near the site.

The exposure route to the soil contaminants was via inhalation. The contamination levels in the soil could represent a health concern for individuals who would be in direct contact with the site. This scenario is unlikely, since the chain-linked fence adequately prevents site access. The removal of the contaminated soil from the site will eliminate future exposures.

ATSDR's Child Health Initiative

The health of children was taken in consideration during the development of air action levels for excavation of the contaminated soils.

CONCLUSION

Remediation activities conducted during July of 1998, at the former CT DOT bus garage site did not pose health risks to residents living adjacent to the property (no apparent health risk). Residents living near the former CT DOT bus garage site were not exposed to either dust or VOC levels above the site-specific inhalation action levels.

RECOMMENDATION

The CT DEP should notify the CT DPH if site conditions change, or if additional site remediation efforts are scheduled.

Preparers of the Health Consultation

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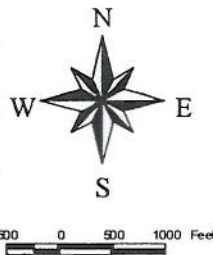
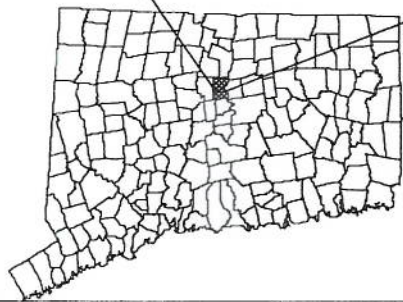
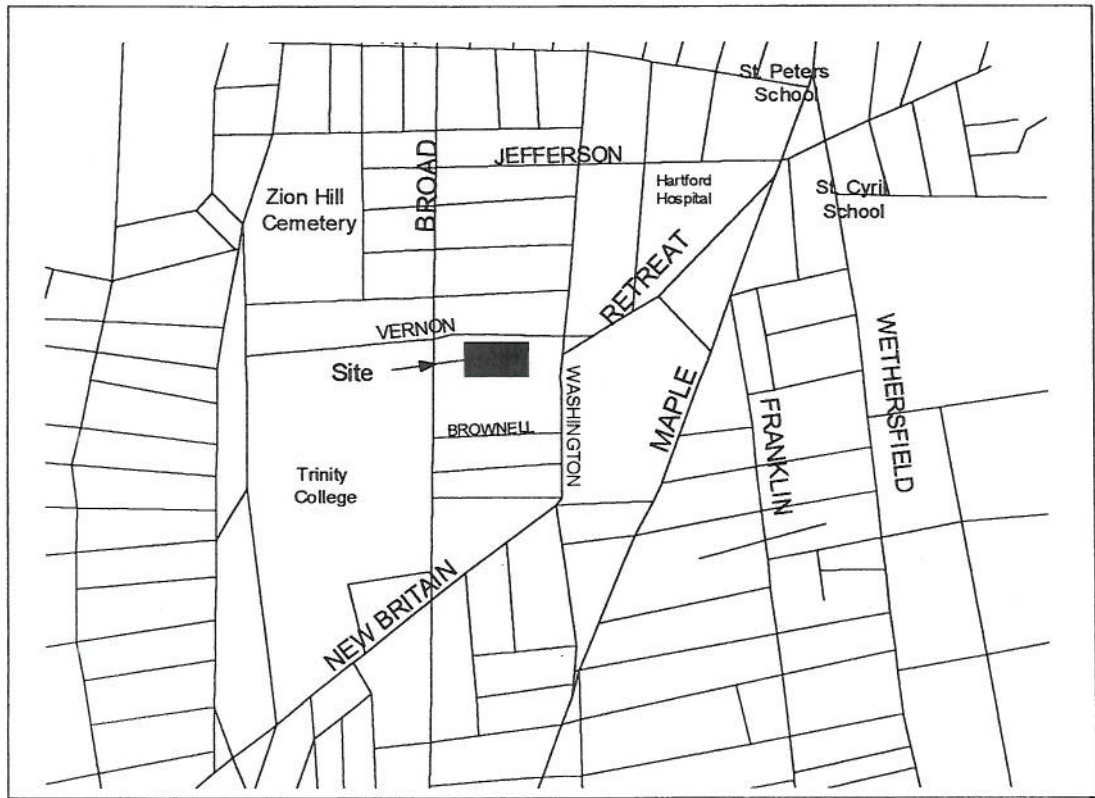
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Figure 1.
Former Vernon Street Department of Transportation Bus Garage Site
Hartford, CT



Connecticut Department of
 Public Health

Division of Environmental
 Epidemiology & Occupational Health

Toxic Hazards Assessment Section

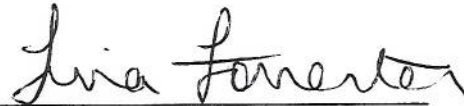
December 1998

REFERENCES

1. Correspondence from: Michael J. Harder (Director, Water Bureau, PERD, CT DEP) to: Mary Lou Fleissner (CT DPH - EEOH), June 16, 1998.
2. Correspondence and data package sent from: Roy Prescott (Haley & Aldrich) to: Gary Perlman (CT DPH - EEOH), August 12, 1998.

Certification

The Health Consultation for the Vernon Street Hartford DOT Garage Site was prepared by the Connecticut Department of Health under a Cooperative Agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the Health Consultation was initiated.



Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation (DHAC), ATSDR has reviewed this Health Consultation and concurs with its findings.



Chief, SSAB, DHAC, ATSDR