

Health Consultation

FREELAND/GARLAND TCE SITE
FREELAND BOROUGH, LUZERNE COUNTY, PENNSYLVANIA

EPA FACILITY ID: PAD987350063

JUNE 21, 2005

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 #3

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Prepared by:

Pennsylvania Department of Health
Division of Environmental Health Epidemiology
Under Cooperative Agreement with the
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Executive Summary

The Pennsylvania Department of Health (PADOH) prepared this health consultation to determine whether residents in six, previously unsampled, homes near the Freeland/Garland TCE Site are exposed to trichloroethylene (TCE) and/or other volatile organic compounds (VOCs) in their private well water at levels that would harm their health. The Pennsylvania Department of Environmental Protection (PADEP) made the request for this health consultation. The PADOH prepared this health consultation under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR).

Residential wells near the Freeland/Garland TCE Site along Front, Graham, Loomis, and Brengle Streets and Crescent Road were sampled and evaluated in this health consultation for the presence of volatile organic compounds. Four samples were taken from these homes from October 2003 to September 2004. Volatile organic compounds were not detected in concentrations above the detection limits of the instrumentation used for analysis, with the exception of one sample that yielded concentrations of 2-butanone for the last two rounds of well sampling. The levels of 2-butanone detected; however, were low and not considered to be a health threat. Therefore, based on current available residential well sampling data in these areas, TCE and other VOCs pose no health threat for the residents that are using their well water for drinking, bathing, showering, and cooking.

The interpretation, conclusions, and recommendations regarding the Freeland/Garland TCE Site are site-specific and do not necessarily apply to any other site.

Background and Statement of Issues

Site Description and History

The Freeland/Garland TCE Site (the site) is in a residential area of Freeland Borough, Luzerne County, Pennsylvania (Figures 1-3). The Garland Commercial Industries, Inc. fabricates steel commercial cooking equipment at the site. This area of the site contains two buildings and two parking areas, is bordered to the north by the Borough of Freeland Municipal Authority Water Department, to the east by Graham Street, to the south by South Street (PA Route 940), and to the west by Adams Street. The area that is of potential health concern consists of eight homes in close proximity that are not connected to municipal water lines and are utilizing water from private wells for drinking, showering, cooking, etc. Contaminants, such as TCE and other VOCs, were detected in the well water of two of these homes. Exposures to VOC contamination discovered in these private wells were evaluated in an ATSDR health consultation published in December 2001. ATSDR reported in this previous health consultation that exposure to TCE and other VOCs in the private well water would not threaten the health of residents using their well water and recommended water from the additional six private wells be sampled [1].

During February 2002, PADEP sampled indoor basement air in four homes near the site, along Loomis, Brengle, Front, and Graham Streets to ensure that VOCs had not migrated into the indoor air of the residences. PADEP also sampled indoor basement air at two additional residences that were located outside the area of concern along Crescent Road to serve as background samples. PADEP requested that the results of the indoor air samples be evaluated by PADOH and ATSDR. PADOH and ATSDR responded to this request through a health consultation and concluded that exposure by children and adults to benzene and other VOCs at levels detected in the residential basement air would not threaten the health of the residents [2].

In response to the recommendations of the first ATSDR health consultation, PADEP subsequently sampled drinking water from the remaining six residential wells in proximity to the Garland Industries, Inc. PADEP collected four rounds of drinking water samples from October 2003 to September 2004 from the six wells that were previously unsampled. In addition, PADEP installed additional monitoring wells in the vicinity of the sited and were able to better characterize and monitor the TCE groundwater contamination plume at the site [3,4]. PADEP requested that PADOH evaluate the latest residential well sampling results. This health consultation responds to this request.

Site Visits

On September 17, 2003, PADOH Health Assessment Program representatives viewed the site with a PADEP representative. During this site visit, PADOH took notes and photographs regarding the site, and discussed the groundwater and indoor air sampling schedules relevant for this health consultation.

On March 9, 2004, a PADOH Health Assessment Program representative conducted a site visit with a PADEP representative and an ATSDR Region III representative. PADEP staff located the extent of the TCE contamination plumes and discussed the site characterization results with

PADOH and ATSDR. PADEP also discussed their site and off-site groundwater monitoring plan.

Discussion

The single VOC detected in only one of the previously unsampled residential wells is currently below health-based guidelines and does not threaten the health of the residents using their well water. No detectable levels of TCE were found in any of the four rounds of groundwater samples collected from these six remaining residential wells [4,5]. Although the level of the single detected contaminant presently represent no apparent health hazard to the residents using their well water, we cannot be certain that this level will not increase in the future. If future contaminants enter these wells at levels that exceed health-based guidelines or if the groundwater contaminant plume is determined to later extend beyond these wells, then further public health evaluation will be needed. This might include evaluation of the possible migration of the VOCs into air, is needed. The following table represents the compound detected in one well during the last two rounds of sampling at the site [5,6].

Table 1. Summary of the Compound Detected in a Residential Well in the Vicinity of the Freeland/Garland TCE Site, Freeland Borough, Luzerne County, October 2003 – September 2004

Sample ID	Date Sampled	Compound	Concentration (ug/L*)	ATSDR Comparison Values (ug/L)	
RW-05	06/07/2004	2-butanone	410	6,000 – child	Intermediate RMEG [†]
	09/13/2004		11	20,000 – adult	

*micrograms per liter

[†] Reference Dose Media Evaluation Guide

To date, the source of the TCE contamination in the groundwater has not been remediated. The residential wells sampled in close proximity to the Freeland Garland Site are all hydrogeologically upgradient from the groundwater contaminated with TCE and TCE breakdown products identified at the site. Based on the current flow of groundwater at the site, it is not likely that the residential wells evaluated in the health consultation would be impacted from the TCE contamination from the site. However, the potential exists for the hydrogeology in the vicinity of the site to change in the future from the use of these wells. For example, a cone-of-depression could be created in the aquifer, which could potentially draw contaminants into the wells.

Child Health Considerations

PADOH and ATSDR recognize that infants and children may be more vulnerable to chemical exposure than adults. PADOH and ATSDR are committed to evaluating childhood exposures. Considering exposure to VOCs through drinking and showering, children may have an increased vulnerability, presumably because of a higher body burden. PADOH and ATSDR considered

child-specific doses in the analysis for this health consultation and do not expect children in these homes to be at an increased risk.

Conclusions

1. Current exposure to TCE, 2-butanone and other VOCs from private well water represents no apparent health hazard for all the residents utilizing their wells for drinking, showering, cooking, etc. in the homes discussed in this health consultation.
2. Since the groundwater at the site remains contaminated with TCE and other VOCs, future exposure to VOCs in residential wells represents an indeterminate public health hazard.

Public Health Recommendations

Unless the source of TCE contamination is remediated, further monitoring of the hydrogeology and levels of VOC contamination in residential wells in the vicinity of the site are necessary. This recommendation will confirm whether VOCs at levels of health concern would affect these residential wells in the future. If additional residential well samples are collected, PADOH will evaluate the results and prepare a health consultation that addresses the public health significance of the data. If requested, PADOH will implement this recommendation following the receipt of future sampling results.

Public Health Actions Completed and Planned

1. ATSDR and PADOH will make this health consultation available to the residents and will be available to answer the residents' health questions.
2. PADEP characterized the groundwater contamination plume at the site and determined whether nearby residents that utilize residential wells are impacted by TCE or other VOC contamination at the site.
3. PADOH will evaluate future sampling results, as needed, and prepare a health consultation that addresses the public health significance of the data. This recommendation will be implemented at the discretion of the PADOH following the receipt of future sampling results.

References

1. Agency for Toxic Substances and Disease Registry. Health Consultation: Freeland Garland TCE Site (a/k/a Garland/Freeland G.W. Site), Freeland, Luzerne County, Pennsylvania, prepared by the Pennsylvania Department of Health. Stroman, Robert, et. al. December 12, 2001.
2. Agency for Toxic Substances and Disease Registry. Health Consultation (An Evaluation of Volatile Organic Compounds in Indoor Air): Freeland Garland TCE Site (a/k/a Garland/Freeland G.W. Site), Freeland, Luzerne County, Pennsylvania, prepared by the Pennsylvania Department of Health. Stroman, Robert, et. al. June 26, 2003.
3. AMEC Earth and Environmental, Inc. Final Site Characterization Report: Freeland/Garland TCE Site, Freeland Borough, Luzerne, Pennsylvania. February 27, 2003.
4. AMEC Earth and Environmental, Inc. Final-Phase II Site Characterization Report: Freeland/Garland TCE Site, Freeland Borough, Luzerne, Pennsylvania. January 29, 2004.
5. Pennsylvania Department of Environmental Protection E-mail to Chad Clancy, Pennsylvania Department of Health, from John Mellow concerning laboratory results of third round residential well samples at Freeland/Garland TCE Site.
6. Pennsylvania Department of Environmental Protection E-mail to Chad Clancy, Pennsylvania Department of Health, from John Mellow concerning laboratory results of fourth round residential well samples at Freeland/Garland TCE Site.

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Certification

This health consultation for the Freeland/Garland TCE Site was prepared by the Pennsylvania Department of Health under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry. It is in accordance with approved methodology and procedures existing at the time the health consultation was initiated. Editorial review was completed by the cooperative agreement partner

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

Alan Yarbrough

Team Leader, CAT, SPAB, DHAC, ATSDR

Appendix

Figures

Figure 1

Freeland/Garland TCE Site Location Map

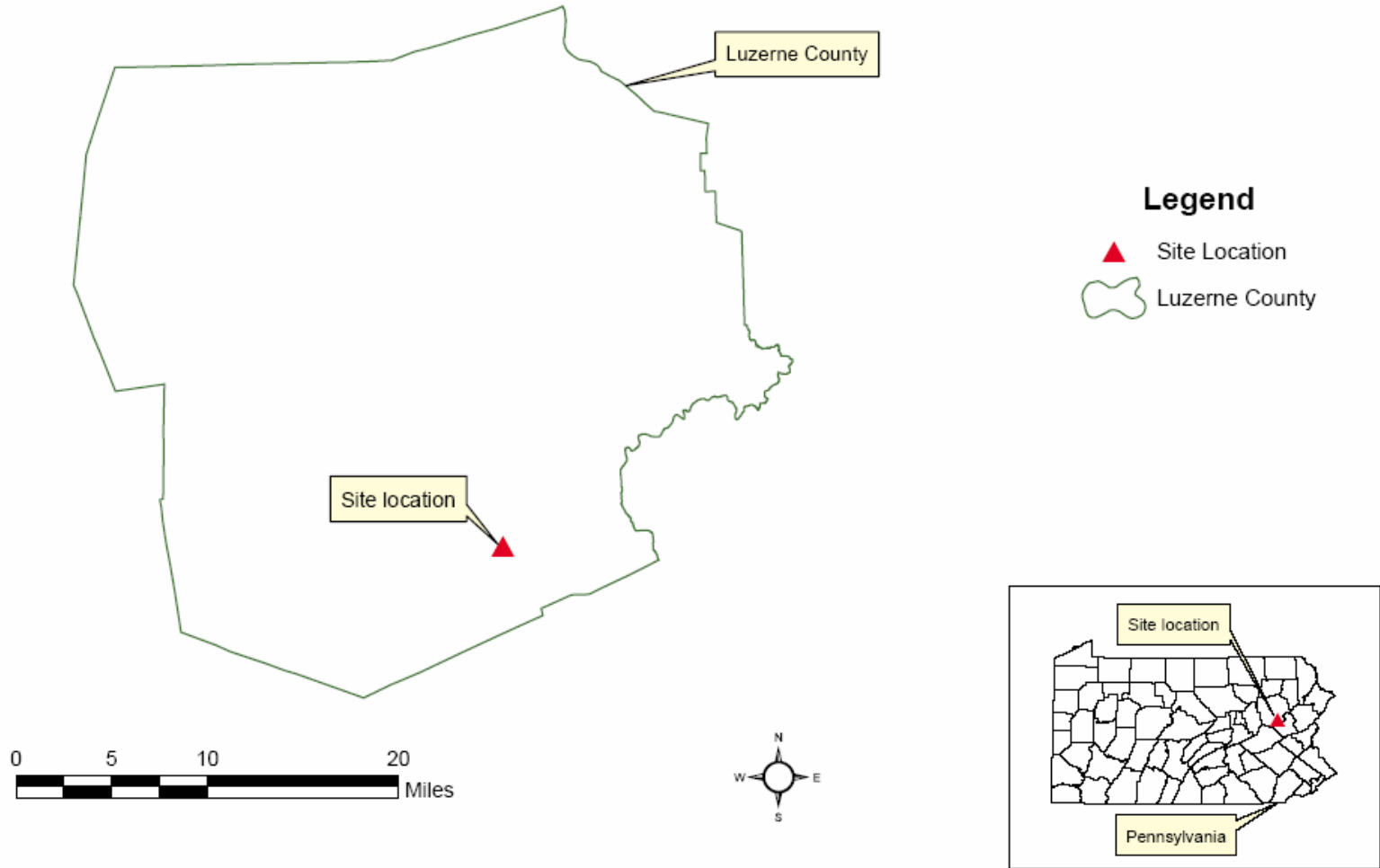
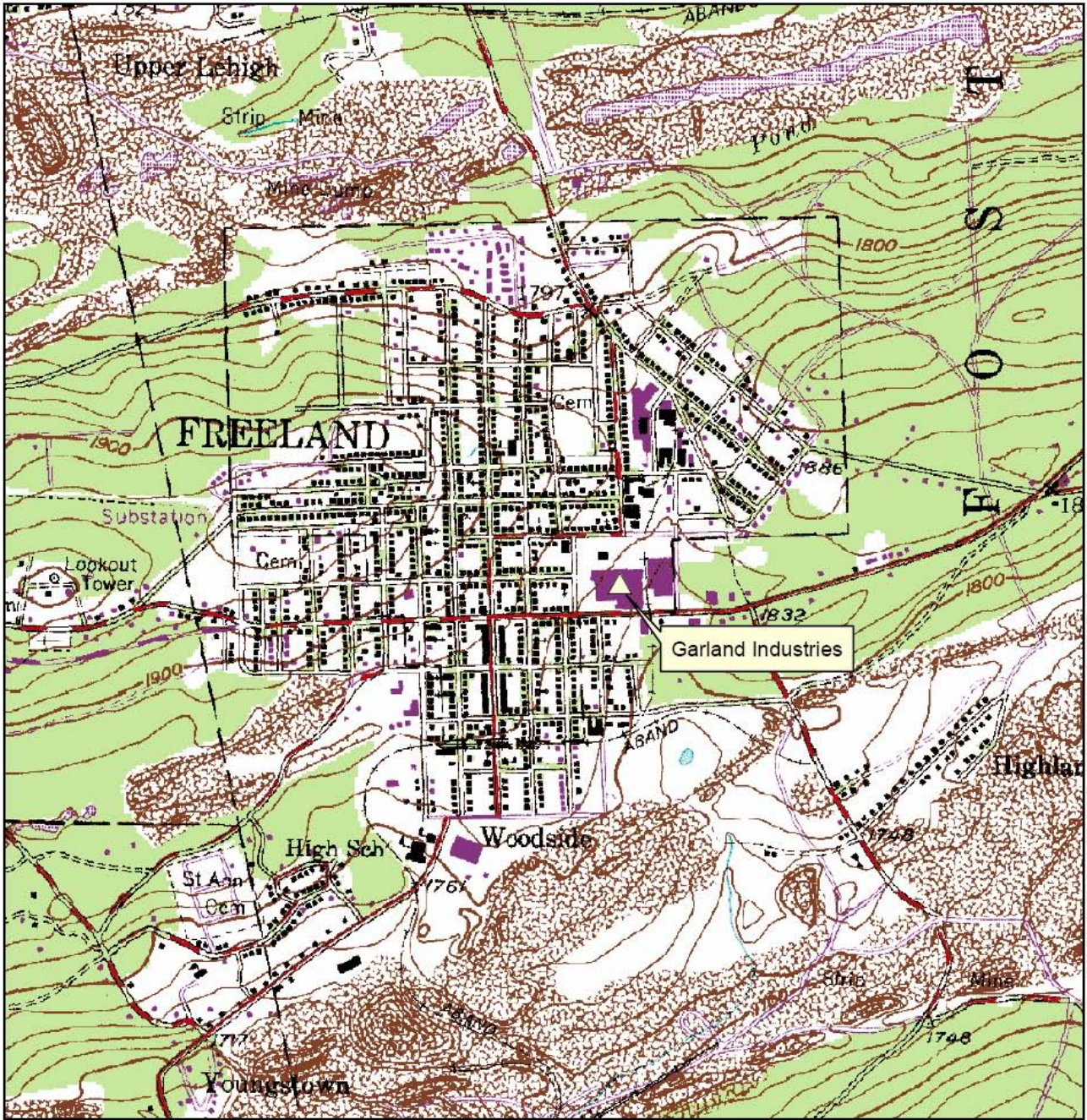


Figure 2

Freeland/Garland TCE Site Location Map



0 500 1,000 2,000 3,000 Feet



Legend

△ Garland Industries

Figure 3

Residential Areas Near the
Freeland/Garland TCE Site



0 500 1,000 2,000 Feet

