

GREENWICH HIGH SCHOOL ENVIRONMENTAL TESTING UPDATE

Site Investigation Results: Arsenic Background Study

Highlights:

An environmental study of the Greenwich High School campus grounds has been completed. This study was completed over several phases of investigation (December 2011, February 2012, April 2012, and June-August 2012). The results of the study have been summarized in a series of four reports; each report has an associated Project Update that summarizes the information contained in that report. This Project Update discusses a study completed to evaluate background concentrations for arsenic at the Greenwich High School. This study, which is available for review as an appendix to the Feasibility Study, has shown the following:

- *“Background” is the concentration of a substance in an environmental media (in this case, soil) that occurs naturally or is not the result of human activities.*
- *A background concentration of arsenic in soil has been determined for the Greenwich High School campus. This concentration, 20 milligrams per kilogram (or parts per million) was determined through statistical analyses using established guidelines and procedures.*
- *Remedial alternatives to address arsenic in soil at concentrations above this background level will be considered in the Feasibility Study.*

Introduction

In mid-July 2011, during the course of excavation work for the Greenwich High School Music Instructional Space and Auditorium project, unexpected soil conditions were discovered in the west (or back) parking lot, adjacent to the athletic fields. Initial testing results showed levels of a class of chemicals known as polychlorinated biphenyls (or PCBs) in soil above standards set by the Connecticut Department of Energy and Environmental Protection (DEEP). Since this discovery, a comprehensive environmental study of the high school campus grounds has been completed over several phases (corresponding with school vacations) in December 2011, February 2012, April 2012, and June-August 2012.

The results of the comprehensive study have been summarized in four reports:

- Remedial Investigation Report,
- Ecological Risk Assessment Report,
- Human Health Risk Assessment Report, and
- Feasibility Study Report.

All of these reports are available to the public on the Greenwich Public Schools website (refer to the back page of this document for the website address). Project Updates, such as this one, are also available on the website, and summarize each report. This Update provides a summary of the Arsenic Background Study which is included as an appendix to the Feasibility Study Report.

Who completed the environmental study, and were regulatory agencies involved?

The Greenwich Public Schools/Board of Education and the Town of Greenwich are working in collaboration to address the environmental concerns at the Greenwich High School. The Town has hired AECOM, an environmental consulting company, to be responsible for managing the project and leading the environmental study and remediation planning efforts. AECOM has a long history of working with the Town on important engineering and environmental remediation and protection projects.

There are several regulatory agencies involved in the study and overall project. The State of Connecticut's Department of Public Health has consulted on the project, as well as the CT DEEP and the Federal Environmental Protection Agency (EPA). These agencies are working together with the Town to protect human health and the environment at the Greenwich High School Site.

What is Background?

The Federal EPA defines background as:

The concentration of a substance in an environmental media (air, water, or soil) that occurs naturally or is not the result of human activities.

In order to determine whether or not certain substances (chemicals) are related to human activities at a site or are naturally-occurring (native to the soil and rock present in particular areas of the country), environmental practitioners collect soil samples from areas at the site (or surrounding the site) that are unaffected by the

contamination being studied. These samples are sent to a certified laboratory for analysis. These data are then compared (using statistics) to data from affected areas of the site to determine if the concentrations in the “background” areas are elevated (higher) compared to affected areas.

What is arsenic?

Arsenic is a naturally occurring element widely distributed in the earth’s crust. Arsenic occurs naturally in soil and minerals, especially in certain areas of the country. Arsenic compounds are mainly used to preserve wood. Copper chromated arsenate (CCA) is used to make “pressure-treated” lumber. Other arsenic compounds are used as pesticides, primarily on orchards. Arsenic may enter the air, water, and land from wind-blown dust and may get into water from runoff and leaching.

Why was background evaluated for the Greenwich High School?

Soil sampling results from early phases of the environmental study showed that the distribution of arsenic across the Greenwich High School property was different from the other chemicals (refer to the June 14, 2012 Project Update, posted on the website). Specifically, arsenic concentrations were found to exceed conservative screening levels (Residential Direct Exposure Criteria) established by the CT DEEP in soil within the fill area of the site, but also on the southeast portion of the site. The southeast corner of the site was occupied by residences before the High School was constructed, and left as a “reserve” and not developed or filled during the construction of the High School. In addition, other

chemicals of concern (e.g., PCBs and lead) typically found in the fill were not found in soil in the southeast portion of the site. Therefore, it was suspected that the arsenic found in this area is naturally occurring. The phase of study conducted during June-August 2012 included an evaluation of this possibility.

What were the results of the background study?

The background study provides the documentation for determining a background concentration for arsenic in soil for the Greenwich High School site. As described in the report, the background arsenic evaluation includes a determination of background arsenic concentrations for “native” site soils (meaning the soil that was on the High School property before the fill was brought to the site). The same analysis was done for soil that was imported as fill to the site during construction. A comparison of the native soils to imported fill soils shows that the two soils have different arsenic concentrations.

A value of 20 milligrams per kilogram (or parts per million) was established through statistical analyses using established procedures and guidelines for this type of analysis. The study has been submitted to the Connecticut DEEP for its review and concurrence. An electronic copy of the study is available for review by the public at the Greenwich Public Schools website (link listed below); the Arsenic Background Study is an appendix of the Feasibility Study.

**For all information requests, please contact:
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**OR, please visit the Greenwich Public Schools’ website for further information:
<http://www.greenwichschools.org/>
see link for “GHS & MISA Environmental Testing and Reporting”**