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Fact Sheet — August 2014
Lockheed Martin Corporation
Valley Forge, PA
Environmental Remediation Activities

Remediation Overview

Lockheed Martin started conducting environmental investigations at its Valley Forge, Pa., facility after a large water tank was removed and oily sand was discovered in the ground directly beneath the tank in 2006.

Extensive environmental testing was conducted in the former water tank area, and contamination was found in the soil and groundwater there. The contaminated soil was removed and hauled to a licensed landfill.

Groundwater investigations were completed to determine the size and scope of the groundwater plume and to determine if remedial action was necessary.

Environmental tests that were completed as part of a remedial investigation indicate that the contamination does not pose health risks to employees at the site, the general population beyond the property boundaries, or the environment. The contamination does not impact the safety of drinking water, because the drinking water is — and always has been — from the public water supply. The supply is tested regularly and meets all regulatory drinking water standards.

The remedial investigation also includes vapor intrusion testing, which is being conducted to determine air quality below and inside selected buildings.

This fact sheet is designed to:

- Provide background information about the project and objectives,
- Update employees on the recently completed remedial investigation, and
- Describe the next steps in the remedial investigation process.

Remedial Investigation Objectives

Lockheed Martin's goal, first and foremost, is to protect human health and the environment. Its objectives for the remedial investigation were to:

- **Evaluate the nature and extent of contaminants in the groundwater near the former water tank area,**
- **Collect sufficient data to support the establishment of a Site-Specific Cleanup Standard, and**
- **Evaluate and select the appropriate groundwater remedy.**

Background Information

The Lockheed Martin facility in Valley Forge has been an industrial property since the early 1960s. Prior to that, the area was farmland.

In December 2006, a 200,000-gallon water tank that had served as a backup for fire emergencies was demolished and removed from the property. The tank had been located next to Building 600.

In the 1960s when the facility was constructed, it was a commonly accepted construction practice to put a layer of oil-laden sand beneath large tanks. In December 2006 and January 2007, Lockheed Martin conducted testing to characterize the oily sand and soil for disposal.

The testing determined that the solvent PCE, also known as perchloroethene or tetrachloroethene, was present in the oily sand. PCE is a manmade liquid solvent used for jobs such as removing grease from metal surfaces or dry cleaning.

All contaminated sand and soils were removed and hauled to a permitted landfill. Testing in April 2007 determined that the PCE had not spread to soil beyond the tank area. A groundwater investigation was initiated after it was determined that PCE concentrations in bedrock exceeded Pennsylvania regulatory standards.

In March 2008, the first groundwater monitoring well was installed, and sampling determined that PCE had reached the groundwater. Over the next 18 months, 12 additional wells were installed to gather more information. From 2010 through 2012, 27 additional monitoring wells were installed, bringing the total number to 40. Many of these wells are constructed with mult-level sampling ports. This means that multiple samples can be collected from separate and discreet depths within the same monitoring well.Results of the groundwater sampling showed that levels of PCE were above Pennsylvania regulatory standards in several well locations near the former water tank area.

Lockheed Martin is conducting the remedial investigation voluntarily and in collaboration with the Pennsylvania Department of Environmental Protection (PADEP) under the Land Recycling and Environmental Remediation Standards Act, commonly called PA Act 2.

Remedial Investigation – Groundwater

A Remedial Investigation Report and Risk Assessment Report will be submitted to PADEP in September 2014. The Remedial Investigation Report will present the environmental data collected to date and will provide interpretations, conclusions, and a description of the recommended remedial approach. The Risk Assessment Report will present an evaluation of the data and a determination if there are any potential risks to human health or the environment.

The groundwater investigation initiated in April, 2008, has identified PCE at concentrations that exceed the residential Statewide Health Standard (rSWHS) of 5 µg/L at the point of compliance (i.e., property boundary). Other organic compounds that have been detected at the site have been at concentrations that are anticipated to attain a rSWHS. Therefore, Lockheed Martin intends to pursue a relief of liability under Act 2 using a Site Specific Standard for PCE and applying a Statewide Health Standard to other organic compounds detected in site groundwater samples.

The groundwater plume is present northwest from the former Building 600 tank area at shallow depths, where PCE concentrations of 1,000 to 4,200 micrograms per liter (µg/L) are observed. PCE concentrations in the groundwater near the property boundary are typically 100 to 200 µg/L. A groundwater model based on data gathered to date, identified the Schuylkill River and, to a lesser extent, the Upper Merion Reservoir as the likely discharge locations for groundwater from the site. The groundwater model predicted that a Site Specific Standard for PCE of 300 µg/L at the property boundary would be protective of these discharge locations (i.e., no adverse impacts would be detected at the Schuylkill River or Upper Merion Reservoir).

A Risk Assessment was completed to evaluate potential environmental-related risks to a number of receptors. The Risk Assessment was completed by interpreting data from groundwater, soil, and soil gas samples collected at the site. The results of the Risk Assessment indicate there is no risk to the employee population, to the general population beyond the property boundaries, or to the environment.

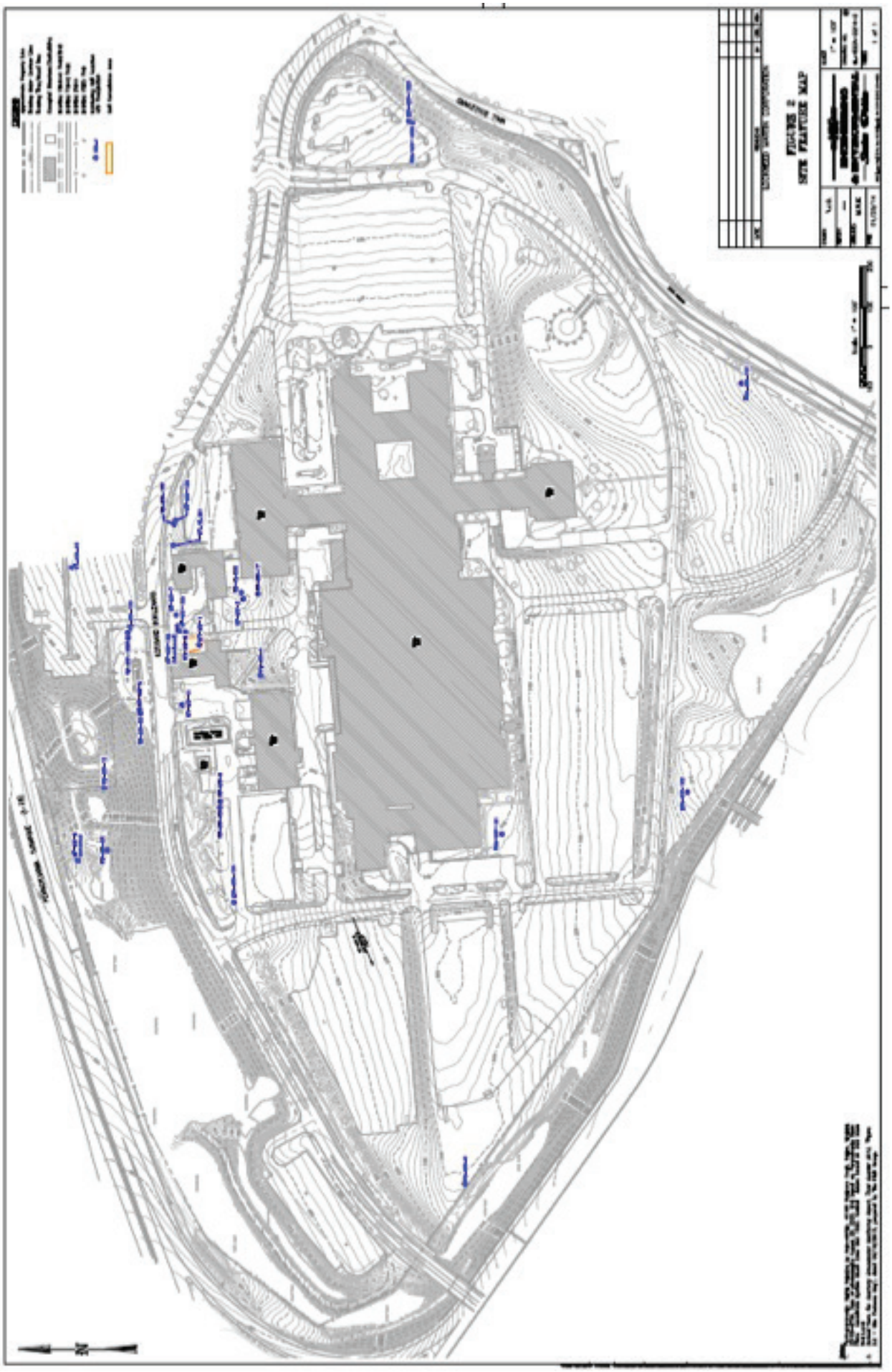
The Remedial Investigation Report will describe the recommended remedial approach. The recommended approach will be to monitor concentrations of groundwater contaminants as they decrease over time through natural processes. The rate of decrease will be confirmed through the ongoing collection and laboratory analyses of groundwater samples.

Remedial Investigation – Vapor Intrusion

A vapor intrusion investigation consisting of sampling of indoor air, sub-slab vapor, and soil gas was conducted for buildings in the vicinity of the source area. Sub-slab (soil gas below the building foundation) and indoor air samples were collected from the following buildings:

- 100,
- 300
- 500
- 550
- 600
- 750

The investigation results indicated no indoor air quality samples exceeded non-residential Medium Specific Con-



Monitoring Well Location Plan

centrations (MSC) for groundwater-related constituents in Buildings 300, 500, 550, or 750.

Concentrations of PCE detected in one sub-slab and one indoor air sample collected in Building 600 exceeded the non-residential MSC. Concentrations of PCE detected in one sub-slab and one indoor air sample collected in the Tunnel 9000 (T9000) portion of Building 100 exceeded the MSC. Although these single detections do not pose a health risk to the employees, vapor intrusion mitigation strategies are being evaluated for both buildings and will be implemented in 2015-2016.

Schedule for Environmental Remediation Activities

In addition to the ongoing collection of samples from the groundwater monitoring wells and the evaluation of potential soil vapor mitigation strategies at T9000 and Building 600, the following activities will be completed:

Fall 2014

- Submit Remedial Investigation Report and Risk Assessment Report

Spring 2017

- Submit Act 2 Groundwater Closure Report

For More Information:

Lockheed Martin will keep employees informed of the activities and copies of the Remedial Investigation Report and Risk Assessment Report will be available on the Valley Forge remediation website upon approval from PADEP.

If you have questions, please don't hesitate to contact:

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GLOSSARY

Groundwater Model — A Groundwater Model is a computer model that simulates the site environment. Groundwater modeling helps a technical team determine how the groundwater is flowing and how contaminants are behaving at the site. The team uses that information to determine the best cleanup methods.

Groundwater Monitoring Well — Groundwater Monitoring Wells are used to measure the properties in the groundwater on a regular basis. By measuring the level of contaminants in the water over time, scientists can determine if the level is decreasing, increasing or staying the same. Groundwater monitoring is used to select cleanup methods. It also helps determine if the cleanup methods in place are working as intended.

Land Recycling and Environmental Remediation Standards Act — Commonly called PA Act 2, the Land Recycling and Environmental Remediation Standards Act monitors companies' voluntary cleanup and reuse of commercial and industrial sites.

PCE — PCE is a manmade liquid solvent also known as tetrachloroethene. It is used for jobs such as dry cleaning or removing grease from metal surfaces. It also is used to make other chemicals, and is found in some consumer products.

Pennsylvania Statewide Health Standards — These cleanup standards are part of the Land Recycling and Environmental Remediation Standards Act. The standards, which are designed to protect public health, offer specific measurements for what is considered a safe amount of any given contaminant in soil or groundwater.

Plume — The plume is the area where contamination is located in the groundwater.

Remedial Investigation — A Remedial Investigation is conducted to determine the nature and extent of contamination. A remedial investigation also helps determine the points on a site where cleanup standards must be met, and it collects data that is used to determine how a cleanup will be conducted.

TCE — TCE is a solvent called trichloroethene that is rarely used anymore. It is a nonflammable, colorless liquid that was used to clean metal parts. TCE also was used in paint removers, spot removers, adhesives and typewriter correction fluids.

Vapor Intrusion Study — Contaminants such as chemicals in the ground can give off gases, or vapors, that can get inside buildings. Common products that can cause vapor intrusion are gasoline or diesel fuel, dry cleaning solvents and industrial de-greasers. The vapors move through the soil and seep through cracks in basements, foundations, sewer lines and other openings. Vapor intrusion studies are used to determine if there are vapors in the building and if those vapors could pose a risk to people in the building.