FIREWORKS I SITE

RTN #4-0090 Tier 1A Permit #100223

Hanover, MA
February 2008

Introduction and Site History

The Fireworks Site is approximately 240 acres of property generally located between King and Winter Streets in the Town of Hanover. Environmental conditions that may have resulted from historic operations have been investigated and assessed during the last several years. Historical activities at the Site included research, development and manufacture of munitions and pyrotechnics for the United States Government, and some commercial manufacture of civilian fireworks. Lead, mercury, and certain organic solvents, among other chemicals, were used in Site manufacturing operations. Several companies operated at the Site until it closed around 1970. Thereafter, the Town of Hanover purchased approximately 130 acres of the Site in the general area of Factory Pond for conservation land and a public works facility. The remaining acreage was sold in May 1983, and was subsequently subdivided into its present configuration. Today, the northern portion of the Site is a multi-tenant, commercial / industrial park with some abandoned structures. The central and southern areas contain open fields, dense foliage areas, and wetlands. The Site is now owned by more than 40 different entities including individuals, companies, and the Town of Hanover.

The U.S. Environmental Protection Agency (EPA) evaluated the Site in 1984 and determined that it should not be added to the National Priorities List as a Superfund Site. In 1986, EPA required the former owner, Susquehanna Corporation, to investigate the southern portion of the Site and to remove some drums and other debris. In 1993 and 1995, the Massachusetts Department of Environmental Protection (MassDEP) conducted limited surface water, sediment, and fish tissue sampling for mercury, lead, and other metals in portions of the streams, ponds, and wetlands at and surrounding the Site.

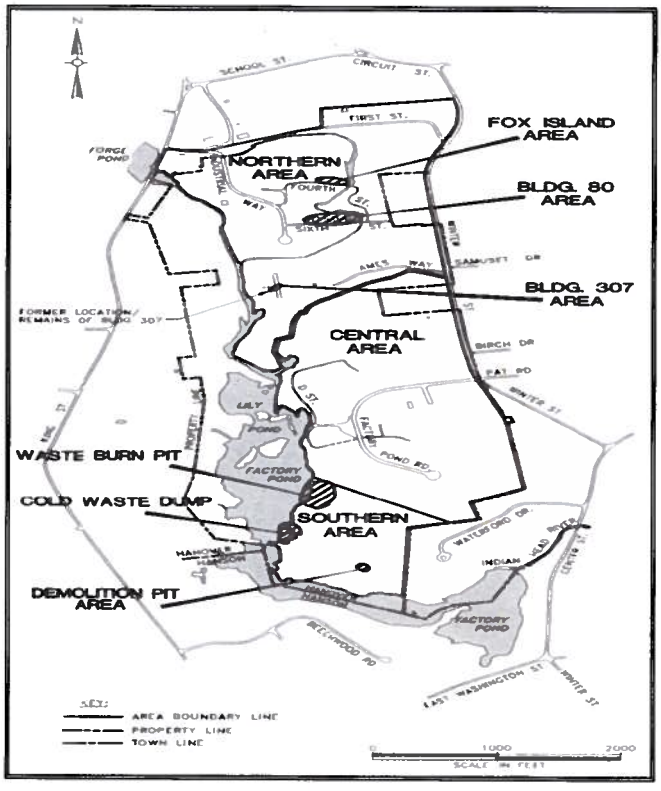
In October 1995, MassDEP issued Notices of Responsibility (NORs) to Kerr-McGee Chemical Corporation, Massachusetts Institute of Technology, National Coating Corporation, Susquehanna Corporation, and the U.S. Department of Defense as potentially responsible parties under Massachusetts General Laws Chapter 21E for environmental contamination at the Site. The first three entities, while not admitting liability, formed the Fireworks Site Joint Defense Group ("Cooperating Parties"), and have been investigating the environmental conditions at the Site in accordance with Massachusetts laws. None of the Cooperating Parties owns any property at the Site. The Cooperating Parties subsequently reached an agreement with the Department of Defense for reimbursement of a portion of the cost of the site investigation process.

MCP Process

The Massachusetts Contingency Plan (MCP) establishes the process by which MassDEP regulates the investigation and cleanup of contaminated properties in the Commonwealth. The MCP process has five components. Phase I is a preliminary site investigation to confirm whether the location is a "disposal site." Phase II is a systematic investigation of environmental conditions at the entire site, that provides the data necessary to assess potential site risks. The evaluation of cleanup options and the selection of a cleanup remedy occur in Phase III. In Phase IV, a plan to carry out the chosen remedy is prepared and implemented. Phase V includes operation, maintenance and/or monitoring of the remedy and proceeds until cleanup is complete. The cleanup process is completed when a condition of "No Significant Risk" has been achieved and certain other regulatory requirements have been met.

Work Performed To Date

The Phase I investigation focused on several specific locations of historic operations at the Site. The field investigation began in July 1997. Soil borings were drilled on site and a monitoring well was installed in each of the five areas of interest: Fox Island, Building 80, Building 307, Waste Burn Pit and Demolition Pit Area. The Site was ranked using these and other available data and classified as Tier 1A. The Tier 1A designation requires every work plan and report to be approved by the MassDEP prior to progressing to the next phase of work. The Phase I Report, Tier Classification and Tier 1A Permit Application were submitted to MassDEP in 1997 and MassDEP issued Permit No. 100233 to the individual Cooperating Parties.



The Phase II investigation was conducted in sub-phases (labeled IIA, IIB, IIC, and IID) because of the size and complexity of the Site. The Phase IIA groundwater investigation focused on groundwater flow and quality across the Site. Field activities were conducted in November and December 1998. The results of the groundwater analyses indicated the sporadic presence of volatile organic compounds (VOCs) at several locations. Shortly thereafter, MassDEP requested that the Cooperating Parties fence the Cold Waste Dump Area, which had historically served as a burial area for spent metallic ordnance wastes and debris. Precipitation and runoff had eroded portions of that area and exposed previously buried materials. The Cooperating Parties agreed to undertake an Immediate Response Action and erected a fence around the area in July 1999 to isolate it from recreational users until the area can be remediated.

The Phase IIB investigation characterized the upland areas of the Site (soil and groundwater), including further defining groundwater quality at select locations and assessing soil conditions at locations related to historic operations across the Site. The Phase IIB field program ran from July through October 2000. The program established the distribution of lead and mercury in soils and identified elevated levels of VOCs in soils near the Waste Burn Pit and Demolition Pit Areas that require further analysis. Additionally, some VOCs were identified in the lower aquifer in the northern part of the Site and near Building 307. Phase IIC focused on the streams, ponds, and wetlands of the Drinkwater River system on the Site with some additional sampling to refine Phase IIB results. Field work began in November 2001 and concluded in April 2002. The field program mapped the location of lead and mercury in stream and pond sediments, while groundwater screening in the Building 307 Area narrowed down potential VOC source areas. Soil gas results showed VOCs levels in the Waste Burn Pit Area suggestive of recent disposal after Site operations ceased in 1970.

The Phase IID investigation focused on collecting data to support the risk characterization. The program was conducted from August through October 2003 and collected data regarding the nature and extent of contamination by metals (primarily lead and mercury) in the sediment. Several samples were collected below Factory Pond Dam to evaluate whether any mercury had migrated downstream. Biological specimens (fish and invertebrates), and additional soil and groundwater samples were collected to support human health and environmental risk characterizations. Results indicated that mercury continues to be the primary metal of concern in Site sediments because of bioaccumulation in some of the fish and wildlife.

The Phase II Comprehensive Site Assessment (CSA) Report was submitted to MassDEP in November 2005. The risk characterizations showed the potential for significant risk to benthic organisms, fish, reptiles, birds and mammals due mainly to the presence of mercury, lead and antimony. The greatest risks to fish and wildlife receptors were in areas associated with historical sources of mercury and lead releases in the north. Risks observed for open-water habitats and wetlands were more pronounced than in the upland areas of the Site. Risks to fisherman eating the fish from the ponds and river channels were indicated due to methylmercury accumulation in the fish (a Fish Consumption Advisory has been in effect since 1995). Potential significant risks also were indicated for future Site users who might interact with the relatively higher soil contamination in the northern source areas and in the southern disposal areas. The risks associated with the soil in the south are attributable to PAHs and some organic compounds, in addition to mercury and lead.

MassDEP approved the Phase II CSA Report on August 16, 2006. The Cooperating Parties then began working with MassDEP to identify appropriate remedial strategies for addressing the potentially significant risks that were found. The Cooperating Parties began Phase III, which involved identifying and evaluating appropriate and effective remedial technologies and options for the Site. A Remedial Action Plan (RAP) was developed that targeted specific impacted areas with identified cleanup methods and goals. Remedial action objectives were defined to address the significant potential risks and reflect the cleanup requirements associated with the Site soil, groundwater and sediment. Various technologies for eliminating or mitigating the identified potential risks to people or the ecological species at the Site were identified and screened, and the most promising options were then combined into a set of Site-wide alternatives to be evaluated in greater detail relative to criteria prescribed in the MCP. Five Site-wide alternatives were evaluated, covering a broad range of contaminant removal, cost, and effectiveness relative to achieving a level of "No Significant Risk". A Draft RAP was submitted to MassDEP in November 2007. The Draft RAP is currently under review by MassDEP and available for public review and comments. The Cooperating Parties also have begun discussions with the Department of Defense regarding a new cost sharing agreement for the costs of implementing the remedy that will be selected for the Site.

Next Steps

Following the receipt of comments from MassDEP and the public, the Draft RAP will be finalized and a remedial alternative will be selected for implementation. Additional soil and sediment samples may be collected in order to better define the volumes of soil and sediment that need to be addressed. Thereafter, Phase IV will begin and the selected Site-wide alternative will be designed and implemented.

For More Information

Any questions relating to the Fireworks Site should be addressed to Mr. Jonathan Hobill, MassDEP, 20 Riverside Dr., Lakeville, MA 02347 or call (508) 946-2870. Copies of all Scopes of Work and project reports, including the Draft Phase III RAP, are available in the Site Repositories at the Hanover and Hanson municipal libraries.