

Site Review and Update

Lang Property

Pemberton Township, Burlington County, New Jersey

Cerclis No. NJD980505382

July 9, 1997

Prepared by:

New Jersey Department of Health and Senior Services
Consumer and Environmental Health Services

Under Cooperative Agreement with:
The Agency for Toxic Substances and Disease Registry

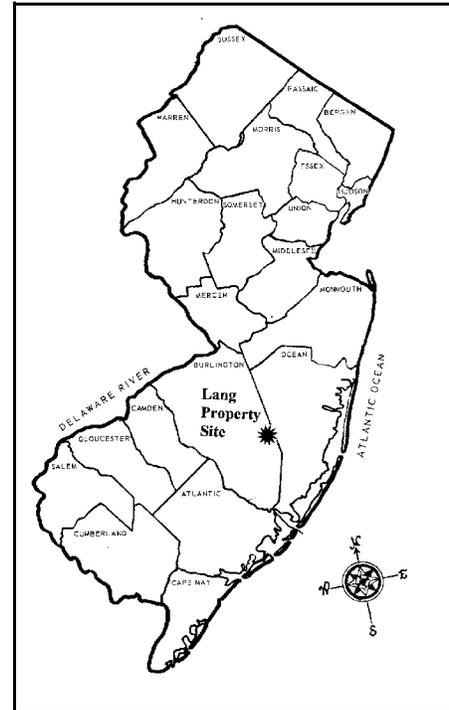
SUMMARY OF BACKGROUND AND HISTORY

The Lang Property site is located on a 40-acre parcel of land near the Lebanon State Forest in a sparsely populated rural area of Pemberton Township, Burlington County, New Jersey (see inset). The Lang Property site encompasses about 40 acres, however, the area of contamination and remedial activity is limited to approximately 2 acres. Portions of the 40 acres was used for blueberry farming between 1965 and 1970.

The site is bounded by an active cranberry bog to the north and west. State Highway Route 70 lies to the north and the Penn Central Railroad tracks lie to the south. Former cultivated fields of blueberry plants and forested sections lie directly to the east of the site. Figure 1 shows details of the Lang Property site.

The area surrounding the forty-acre site is forested and agricultural. The remainder of the site is vacant, covered with mostly uncultivated blueberry plants and forested sections. Currently there remain some portions of cultivated blueberry fields on the portion of the 40 acres away from the contaminated area.

In 1975, between 1200 to 1500 drums of unknown chemical wastes were found on the site. In 1976, the owners of the property began removal of the drums. During drum removal, some of the drums into were emptied into unlined pits. Others were spilled directly onto the ground.



Two aquifers (upper and lower) were identified at the site. The upper aquifer (Cohansey Sand Formation) and the lower aquifer (Kirkwood Formation) are not separated by an impermeable layer. Groundwater in the Kirkwood Formation is recharged by percolation through the Cohansey Sand Formation. The depth to groundwater ranges from one to three feet below the ground surface depending on the time of year. The direction of groundwater flow is in a northwesterly direction.

Several residences were identified in the vicinity of the Lang Property site that depend on the shallow groundwater for domestic water supply. The aquifer beneath the site supplies drinking water to approximately 13,000 residents. As many as 20 private wells are located within 1 mile of the site. However, potable wells identified in the immediate area were up gradient from the site (not in the direction of groundwater flow).

Residents living near the Lang Property site and nearby blueberry farmers cultivating berries have expressed concerns regarding potential human health effects from spillage of the drums as well as the possible contamination of blueberry and cranberry fields. This Site Review and Update will...

Demographics

According to 1990 United States Census data, 395,066 people live in Burlington County. Approximately 31,342 people reside in Pemberton Township. About 42 people reside within a one mile radius of the site. The nearest occupied residence is located approximately 1300 feet south east of the site.

A summary of population statistics within one mile of the site is presented in the attached ATSDR demographic map.

Remedial History

Between 1977 to 1979, environmental sampling was conducted by the Burlington County Health Department and the New Jersey Department of Environmental Protection (NJDEP). The sampling results indicated the presence of volatile organic compound (VOC) contamination in groundwater on the site.

The groundwater contamination included 1,1- dichloroethene (max. conc. - 1400 ppb), 1,1-dichloroethane (max. conc. - 4300 ppb), trans-1,2-dichloroethene (max. conc. - 2500 ppb), 1,1,1-trichloroethane (max. conc. - 8200 ppb), trichloroethane (max. conc. - 55,000 ppb), benzene (max. conc. - 1600 ppb), and tetrachloroethene (max. conc. - 15000 ppb).

In 1982, the Lang Property site was included in the United States Environmental Protection Agency (USEPA) National Priority List (NPL). A Remedial Investigation/Feasibility Study (RI/FS) was completed by the EPA in August, 1986. The RI included investigation of groundwater, as well as sampling of site-associated soil and nearby surface water. Groundwater investigation included sampling and analysis of water collected from nineteen monitoring wells installed at the Lang Property site. Most groundwater contamination was found in the shallow monitoring wells (30 feet or less). The results of groundwater sampling showed the presence of volatile organic compounds (VOC's) and inorganic compounds. The VOC's included tetrachloroethene, benzene, toluene, trichloroethane, trichloroethylene, and xylene. The inorganics that were detected were aluminum, antimony, cadmium, chromium, iron, lead, manganese, nickel, and thallium.

The RI/FS characterized the contaminant plume as migrating slightly outside the site boundaries. It was determined that contaminants had migrated up to 500 feet downgradient and to the northwest from the disposal area, and up to 30 feet in depth.

A Record of Decision (ROD) was issued by USEPA in September, 1986. The ROD provided for excavation of contaminated soil, extraction and treatment of contaminated groundwater followed by reinjection, filling site surface with new soil, and a security fence to restrict access to the site.

Phase I of the ROD (soil clean-up, restoration, and site fencing) was completed by November, 1988. Phase II of the ROD, the design and construction of the system, was completed by August, 1995.

Start-up and operational testing of the groundwater remediation system was initiated on August 22, 1995. Operation of the groundwater treatment system will continue to operate until established cleanup levels are met (expected to be 1999).

ATSDR Activity

The Agency for Toxic Substances and Disease Registry (ATSDR) completed a Public Health Assessment (PHA) for the Lang Property site in April, 1989. The PHA noted that ingestion, inhalation, and direct contact of contaminants associated with on-site soils, surface water, sediments, groundwater, air, and consumable plants and animals were the identifiable human exposure pathways associated with the site. Contaminants of concern at the site consisted of polychlorinated biphenyls (PCB), VOC's, semi-VOC's, and metals. The PHA categorized the Lang Property site as a potential public health concern because of the risk to health caused by potential human exposure to VOC's, semi-VOC's and PCB's by either inhalation, ingestion or dermal routes.

The 1989 Public Health Assessment identified community health concerns regarding the spillage of the drums as well as the possible contamination of blueberry and cranberry fields. Residents were also concerned about the nature and extent of contamination, impact of the site on property values, and it's possible effects on air quality.

The ATSDR identified the following public health concerns in the 1989 Public health assessment:

- 1) Inhalation of site related contaminants entrained in air during remedial activities is a potential exposure pathway to remedial workers. This pathway is not substantiated in the light of current information since workers were provided with adequate personal protective equipments during remediation as specified in OSHA regulations.
- 2) Some local residences in the vicinity of Lang Property site, who rely on private wells for their drinking water supply may be at risk of exposure to contaminants in the groundwater. However, current site information indicates this exposure pathway is limited since the estimated groundwater contamination plume does not extend much beyond site boundaries. Also the private potable wells near the site are located up gradient from the groundwater plume.
- 3) Direct contact and incidental ingestion of contaminated soil by trespassers is the most likely route of exposure. Current site data and information indicates this pathway is limited since the Lang Property site is fenced and on-site contaminated soils has been removed as part of ongoing remediation.
- 4) There is a potential human exposure pathway to bioaccumulated contaminants in the food chain (blueberries and cranberries grown in the area). This pathway is not substantiated in the light of current site data and information. No crops or gardens (i.e., containing edible plants) are being grown on-site.

- 5) Contaminants can be transported off-site by surface water and sediment runoff. These pathways are not substantiated in the light of current site data and information as there is no surface water body on the site.

Recommendations consisted of : 1) a well inventory to locate all wells within a half mile radius of the site and monitoring of the residential wells in the vicinity of the site, 2) institutional controls for installation of new water supply wells within the contaminated portion of the site; 3) remedial workers provided with adequate personal protective equipment and optimal dust control measures implemented; and 4) additional sampling of the surface water and sediments during remediation of the soil and groundwater.

CURRENT SITE CONDITIONS

Two additional visits were made to the Lang Property site since the PHA was documented in 1989. James Pasqualo from New Jersey Department of Health and Senior Services (NJDHSS), and Steve Jones (ATSDR, Region 2) participated in a site visit, along with representatives of the USEPA on April 19, 1995.

On March 20, 1996, James Pasqualo and Steve Miller of the NJDHSS visited the Lang Property site accompanied by a representative of the United States Environmental Protection Agency (USEPA) and the New Jersey Department of Environmental Protection (NJDEP).

The following observations were made during the site visits:

- # The Lang Property site is a well-kept, fenced parcel of land, comprising some 40 acres.
- # There are no residences on-site, although there is the foundation of a burned hunting/fishing lodge in a site clearing.
- # Inside the fenced area are recovery wells and pumps for extraction of contaminated groundwater for processing. There is a trailer for the contractor and other remediation workers as well as a large process vessel or storage tank and a larger main building which houses several process vessels and holding tanks. An adjacent room houses office space, equipment, and controls for monitoring the processes in the main building. The remediations for on-site contaminated soil recommended in the ROD have already been conducted. The groundwater treatment is ongoing and is expected to be completed by 1999.

CURRENT ISSUES

Based on the environmental data available, site related contamination is present in groundwater. The primary public health issue associated with the Lang Property site is the potential impact of the groundwater contamination on existing private potable wells.

Two aquifers (upper and lower) were identified at the site. The upper aquifer (Cohansey Sand Formation) and the lower aquifer (Kirkwood Formation) are not separated by an impermeable layer. The direction of groundwater flow is in a northwesterly direction.

Several residences were identified in the vicinity of the Lang Property site that depend on the shallow groundwater for domestic water supply. The aquifer beneath the site supplies drinking water to approximately 13,000 residents. As many as 20 private wells are located within 1 mile of the site. However, almost all of the private potable wells identified in the immediate area were up gradient from the site (opposite the direction of groundwater flow). The closest residential potable water wells, are approximately 1300 feet up gradient from the site. Under current site conditions, the contaminant groundwater plume has been captured by the pump and treat remediation. The remediation of the contaminated groundwater at the Lang Property site is ongoing and is expected to be completed by 1999.

The RI noted that one private well was located to be hydraulically downgradient from the site and within a one-mile radius. However, the sampling and analysis of water from monitoring wells located between the site and the nearest downgradient potable well did not indicate any site related contamination.

Approximately one-half to three-quarter miles from the site are active cranberry and blueberry farming areas. These are irrigated by surface water, and are not affected by site contamination because the contaminant plume never migrated more than 500 feet off-site. In addition, blueberries have been sampled with no evidence of site-related contamination.

Contaminated on-site soils have been removed; eliminating this possible pathway of contamination.

No new additional community health concerns associated with the site have been identified.

CONCLUSIONS

1. Based on current conditions at the site, it has been determined that the site poses no apparent public health hazard. Site contamination continues to exist, however, current human exposures are not occurring at the present time since on-site contaminated soils have been removed, the plume of groundwater contamination is being treated by extraction/reinjection, and private wells are not affected by site related contaminants.
2. Recommendation from the 1989 ATSDR Public Health Assessment have either been satisfied or currently are not viable options for protection of public health.
3. No new additional community health concerns associated with the site have been identified.
4. Based on current conditions, no further activities are needed to assess the public health implications of this site.

RECOMMENDATIONS

1. Results of the ongoing environmental monitoring program for groundwater quality should be periodically reviewed for public health significance when available. Should the data indicate a change in site conditions, further health evaluations should be performed for public health implications.
2. Current remedial activities specified in the ROD should be continued to minimize the migration of contaminated groundwater to off-site areas of the site.
3. Based upon current site data and information no further health assessment evaluation or follow-up activities are recommended for the Lang Property site.
4. If additional data becomes available, ATSDR/NJDHSS will review and evaluate such data for public health implications.

PUBLIC HEALTH ACTION PLAN

The Public Health Action Plan (PHAP) for the Lang Property site contains a description of the actions to be taken by ATSDR and/or NJDHSS at or in the vicinity of the site subsequent to the completion of this Site Review and Update (SRU). The purpose of the PHAP is to ensure that this SRU not only identifies public health hazards, but provides a plan of action designed to mitigate and prevent adverse human health effects resulting from exposure to hazardous substances in the environment. Included, is a commitment on the part of ATSDR and NJDHSS to follow-up on this plan to ensure that it is implemented. ATSDR will provide an annual follow-up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this SRU, and will be provided to persons who request it. The public health actions taken or to be implemented are as follows:

Public Health Actions Undertaken by ATSDR/NJDHSS:

1. Environmental data and proposed remedial activities have been evaluated within the context of human exposure pathways and relevant public health issues.

Public Health Actions Planned by ATSDR/NJDHSS:

1. ATSDR and the NJDHSS will coordinate with the appropriate environmental agencies to develop plans to implement the recommendations contained in this SRU.
2. ATSDR will provide an annual follow up to this PHAP, outlining the actions completed and those in progress. This report will be placed in repositories that contain copies of this site review and update, and will be provided to persons who request it.
3. Document will be circulated to the Burlington County Health Department (BCHD).

ATSDR will reevaluate and expand the Public Health Action Plan (PHAP) when needed. New environmental, toxicological, health outcome data, or the results of implementing the above proposed actions may determine the need for additional actions at this site.

CERTIFICATION

This Site Review and Update (SRU) was prepared by the New Jersey Department of Health and Senior Services (NJDHSS) 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 SRU was begun.

Technical Project Officer
Superfund Site Assessment Branch (SSAB)
Division of Health Assessment and Consultation (DHAC)
ATSDR

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

Chief, SPS, SSAB, DHAC,

DOCUMENTS REVIEWED

1. Record of Decision, Lang Property Site, Pemberton Township, Burlington County, New Jersey, USEPA Region II, September 1986.
2. Agency for Toxic Substances and Disease Registry, Health Assessment for Lang Property Site, Pemberton Township, Burlington County, New Jersey, October, 1989.
3. Camp Dresser and McKee Inc., Draft Phase II Remedial Investigation Report for the Lang Property Site, Pemberton Township, Burlington County, New Jersey, April 1986.
4. U.S. Environmental Protection Agency (USEPA), Preliminary Close-out Report, Lang Property Superfund Site, Burlington County, Pemberton Township, New Jersey.

INTERVIEWS/PERSONAL COMMUNICATIONS:

1. Remedial Project Manager/NJDEP
2. Project Manager/Emergency & Remedial Response Division/USEPA

PREPARERS OF REPORT

Preparer of Report:

Steven M. Miller, M.S., Ph.D.
Environmental Scientist II
ATSDR Health Assessment Project
Consumer and Environmental Health Service
New Jersey Department of Health and Senior Services

ATSDR Regional Representative:

Arthur Block
Senior Regional Representative; Region II
Regional Operations
Office of the Assistant Administrator

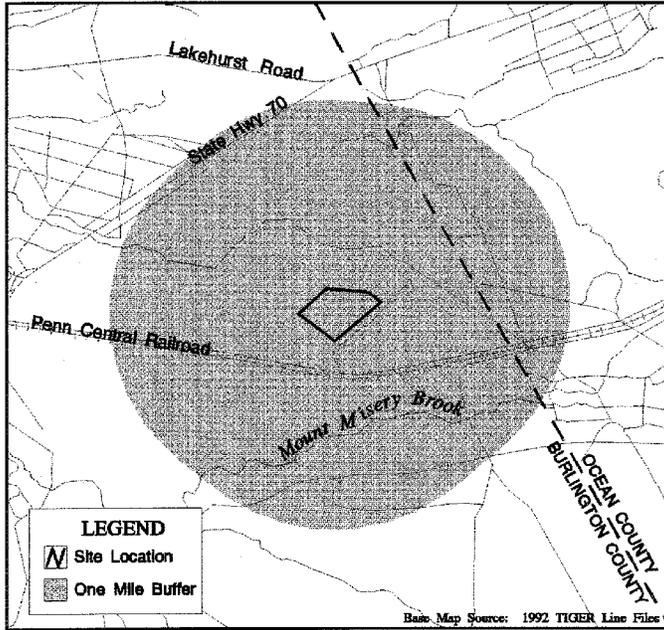
ATSDR Technical Project Officer:

David Hutchins
Technical Project Officer
Superfund Site Assessment Branch (SSAB)
Division of Health Assessment and Consultation (DHAC)

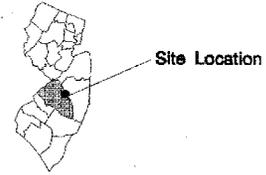
Any questions concerning this document should be directed to:

ATSDR Project Manager
Consumer and Environmental Health Service
New Jersey Department of Health and Senior Services
210 South Broad Street
CN 360
Trenton, NJ 08625-0360

Lang Property Site Pemberton Township, New Jersey CERCLIS No. NJD980505382

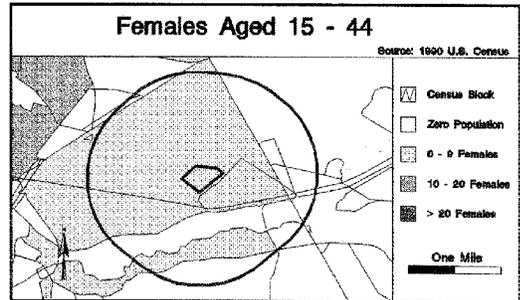
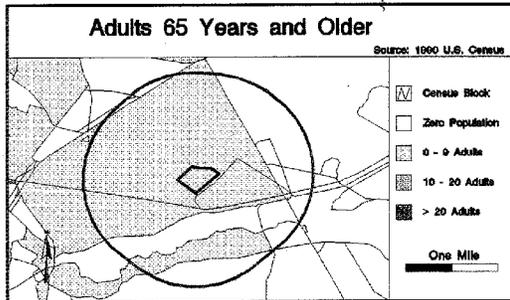
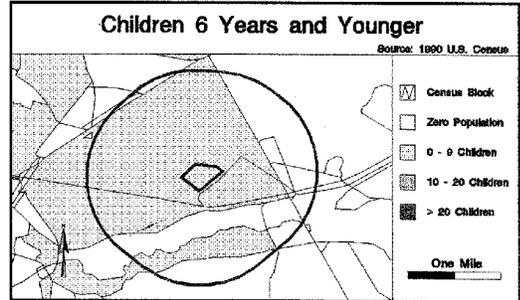
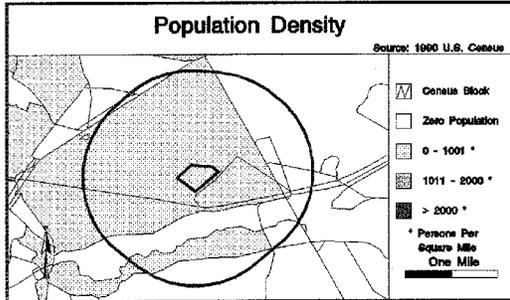


Burlington County, New Jersey



Demographic Statistics Within One Mile of Site*	
Total Population	42
White	41
Black	0
American Indian, Eskimo, Aleut	0
Asian or Pacific Islander	1
Other race	0
Hispanic origin	0
Children Aged 6 and Younger	4
Adults Aged 65 and Older	4
Females Aged 15 - 44	8
Total Housing Units	19

*Calculated using an area-proportion spatial analysis technique



AT&T
GIS V Public Maps, Analysis