

PRELIMINARY

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**Health  
Assessment  
for**

MONROE TOWNSHIP LANDFILL  
MONROE, MIDDLESEX COUNTY, NEW JERSEY  
NJD980505671

Agency for Toxic Substances and Disease Registry  
U.S. Public Health Service

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THE ATSDR HEALTH ASSESSMENT: A NOTE OF EXPLANATION

Section 104(i)(7)(A) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, states "...the term 'health assessment' shall include preliminary assessments of potential risks to human health posed by individual sites and facilities, based on such factors as the nature and extent of contamination, the existence of potential pathways of human exposure (including ground or surface water contamination, air emissions, and food chain contamination), the size and potential susceptibility of the community within the likely pathways of exposure, the comparison of expected human exposure levels to the short-term and long-term health effects associated with identified hazardous substances and any available recommended exposure or tolerance limits for such hazardous substances, and the comparison of existing morbidity and mortality data on diseases that may be associated with the observed levels of exposure. The Administrator of ATSDR shall use appropriate data, risk assessments, risk evaluations and studies available from the Administrator of EPA."

In accordance with the CERCLA section cited, ATSDR has conducted this preliminary health assessment on the data in the site summary form. Additional health assessments may be conducted for this site as more information becomes available to ATSDR.

PRELIMINARY HEALTH ASSESSMENT  
MONROE TOWNSHIP LANDFILL  
MONROE, NEW JERSEY

Prepared by:  
Office of Health Assessment  
Agency for Toxic Substances and Disease Registry (ATSDR)

Background

The Monroe Township Landfill (MTL) is listed by the U.S. Environmental Protection Agency (EPA) on the National Priorities List. The 86-acre site is located in Monroe (Middlesex County), New Jersey. The New Jersey Department of Environmental Protection closed the landfill (June 1978) as a result of leachate overflowing off-site. It was determined that off-site migration of leachate from MTL created a potential health hazard which caused the abandonment of a housing construction project. Access to the site is unrestricted. Remedial actions have consisted of a partial capping of MTL. In addition a slurry wall and a leachate collection system currently exists in the "uncapped" (but covered) portion on-site.

The following documents were reviewed by ATSDR: (1) Site Inspection Report, April 10, 1980, (2) The Hazard Ranking Package, August 10, 1982, (3) Consent Order, October 19, 1979, (4) Field Reports (EPA), July 11 to 19, 1979, (5) Various memorandums and attachments, 1979, (6) Summary of Sampling results, July 7, 1988, and (7) Remedial Action Plan Volumes I & II, June 1980. These documents form the basis of this Preliminary Health Assessment.

Environmental Contamination and Physical Hazards

Preliminary on-site leachate sampling results have identified various volatile organic compounds (VOC's). They include: toluene (77 to 139 ppb), vinyl chloride (2 to 4 ppb), 1,2-dichlorobenzene (ND to 3 ppb), 1,4-dichlorobenzene (1 to 3 ppb). Preliminary off-site groundwater sampling results have identified benzene (10 ppb), chloroethane (9 ppb), ethyl benzene (4 ppb), toluene (20 ppb), trichlorofluoromethane (8 ppb), phenol (ND to 80 ppb), dichloroethane (2 to 292 ppb), 1,1 dichloroethane (10 ppb), and methylene chloride (372 to 522 ppb). In addition, other VOC's was identified but contamination of field blanks was observed. Therefore, those samples were unacceptable and need to be repeated. Physical hazards were not reported.

Potential Environmental and Human Exposure Pathways

Potential environmental pathways include those related to contaminated groundwater, surface water, soils, leachate, and volatilization of contaminants in ambient air. In addition, bioaccumulation of contaminants in fish, water fowl, livestock, and commercial agricultural products may be another environmental pathway.

Potential human exposure to contaminants include ingestion and direct contact with groundwater, surface water, soil, and possible ingestion of bioaccumulated contaminants in the food chain. In addition, inhalation of volatilized contaminants or contaminants entrained in air is another potential source for human exposure.

### Demographics

There are about 5,000 to 10,000 people living within a 1-mile radius of the site. The distance from MTL to the nearest residence is approximately 200 feet. Special population concerns with respect to the site consist of a school about 1 to 2 miles from MTL. The school is adjacent to a lake which has been reported to receive contaminated leachate from MTL through off-site migration.

### Evaluation and Discussion

Leachate contamination on-site has been confirmed by sampling. However, on- and off-site soil sampling has not been performed and is necessary to determine the extent of contamination and the possibility for human exposure to potentially hazardous materials. On-site employees and unauthorized persons having access to the site are likely to come into direct contact with contaminants on-site.

Fairly heavy erosion on-site had created a number of drainage ditches which may lead to site-related contaminants migrating off-site. The ditches drain into Manalapan Brook and eventually to Mill Lake. However, it has been reported that the Potentially Responsible Party has corrected the erosion problems on-site. An open leachate lagoon on-site has been reported to be contaminating streams within the area and is seeping into the shallow water table (e.g., Merchantville Formation) of the area. It is unlikely that the leachate lagoon is impacting streams in the area or the shallow water table. Leachate from the lagoon would leach through the landfill and be recollected by the leachate collection system. Surface water sampling is necessary to rule out possible contamination from the site.

Groundwater contamination has been reported (e.g., Magothy Formation). There are private wells within the vicinity of the site. However, it is not known whether area wells are used for domestic purposes or whether they draw water from the above mentioned contaminated aquifers. It has been reported that area wells have been sampled for the presence of site-related contaminants. The results are forthcoming. The remaining area residents receive potable water from municipal wells. Municipal wells within the vicinity of the site consist of two wells. These municipal wells are for standby purposes only. Public system data have confirmed the absence of site-related contaminants in these municipal wells.

It has been reported that release of site-related contaminants into the ambient air has occurred. However, air sampling measurements at MTL have not been performed. Hunting and fishing occur in the area. Deer,

peasants, quail, turkeys, and rabbits have been observed in the area. In addition, recreational fishing occurs in the area. It has been reported that fish are contaminated although sampling information was not reported. ATSDR has prepared, or will prepare Toxicological Profiles on the site contaminants noted above.

### Conclusions and Recommendations

Based on available information, this site is considered to be of public health concern because of the risk to human health caused by the likelihood of human exposure to hazardous substances. Direct contact with on-site contaminated leachate is the exposure pathway of concern. Other probable pathways of exposure include direct contact with and ingestion of off-site contaminated groundwater, surface water, and leachate. In addition, inhalation of volatilized contaminants or contaminants entrained in air by on-site employees and area residents, and possible ingestion of bioaccumulated contaminants in the food chain are other possible pathways of exposure.

Additional information on contaminants released, populations potentially exposed, and environmental pathways through which the contaminants can reach these populations is necessary. At a minimum, future investigations of this site should include a characterization of the site and site contaminants to include off-site sampling of environmental media, an updated area well survey, and a characterization of the hydrogeology of the area.

Further environmental characterization and sampling of the site and impacted off-site areas during the Remedial Investigation and Feasibility Study (RI/FS) should be designed to address the environmental and human exposure pathways discussed above. When additional information and data, such as the completed RI/FS are available, such material will form the basis for further assessment by ATSDR as warranted by site-specific public health issues.