

# Site Review And Update

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GEMS LANDFILL

GLOUCESTER TOWNSHIP, CAMDEN COUNTY, NEW JERSEY

CERCLIS NO. NJD980529192

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES  
Public Health Service  
Agency for Toxic Substances and Disease Registry  
Division of Health Assessment and Consultation  
Atlanta, Georgia 30333

## **Site Review and Update: A Note of Explanation**

The purpose of the Site Review and Update is to discuss the current status of a hazardous waste site and to identify future ATSDR activities planned for the site. The SRU is generally reserved to update activities for those sites for which public health assessments have been previously prepared (it is not intended to be an addendum to a public health assessment). The SRU, in conjunction with the ATSDR Site Ranking Scheme, will be used to determine relative priorities for future ATSDR public health actions.

SITE REVIEW AND UPDATE

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Prepared By:

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**SITE REVIEW AND UPDATE  
GEMS LANDFILL, GLOUCESTER TWP, CAMDEN COUNTY, NEW JERSEY**

**SUMMARY OF BACKGROUND AND HISTORY**

The GEMS Landfill is in Gloucester Township, Camden County, New Jersey. It is owned by the Gloucester Township and covers approximately 60 acres. The site began operations in the late 1950s. In 1969, the Township leased the site to Anthony Amadei to operate as a landfill. New Jersey Department of Environmental Protection and Energy (NJDEPE) allowed disposal of chemical waste at the site for a period of approximately three weeks in 1970. Records indicate that industrial waste including asbestos, solvents, and other materials were disposed of at the GEMS site between 1970 and 1979. Some of the waste was disposed of below the water table. The landfill had exceeded its approved design specifications. A design for expansion submitted at the end of 1976 was not approved because the Environmental Impact Statement required for the expansion had not been conducted. Operations at the site were halted in November 1980. The site was placed on the National Priorities List (NPL) in September 1983. This site has been involved in litigation, including a citizen petition in May 1987 and an injunction to halt remedial activities because of community concerns in April 1989.

The Agency for Toxic Substances and Disease Registry (ATSDR) has conducted two health consultations, one in October 1982 and the other in December 1984; assisted the NJDEPE to develop a plan for monitoring private wells for signs of contamination; performed data analysis; and wrote a health assessment in June 1989. ATSDR regional staff attended several public meetings with EPA during the time of the health assessment. As a result of ATSDR recommendations, potentially impacted persons living near the site are now using an alternate water source, potential exposure pathways are being monitored, and barriers have been constructed to restrict site access.

**PAST ISSUES**

The 1989 Health Assessment lists the site as a potential public health concern because there is a potential risk to human health from possible exposure to hazardous substances at concentrations that may result in adverse health effects. The contaminants of concern and their maximum concentrations (parts per billion) were cadmium (917,000 in on-site soil/leachate), lead (1,600,000 in on-site soil/leachate), methylene chloride (3,200 in off-site surface soil), benzene (2,800 in on-site Cohansey-Kirkwood aquifer), and carcinogenic polycyclic aromatic hydrocarbons (70,000 in on-site soil/leachate) with exposure occurring via ingestion, inhalation, and dermal contact.

## Recommendations

The following recommendations were made in the Health Assessment:

- restrict public access to the GEMS Landfill site;
- conduct additional groundwater monitoring of the Mt. Laurel-Wenonah Aquifer to determine the nature and extent of contamination;
- periodically monitor residential wells until use of the wells is discontinued;
- sample and analyze on- and off-site soil to determine the nature and extent of soil contamination. Soil sampling conducted off site should include those areas used for home gardening and residential yards; and
- if soil sampling results indicate contaminants at levels of public health concern in residential yards or home gardens, actions should be taken to minimize human contact with soil contaminants.

## Description of Pathways

The following represent the environmental pathways of potential public health concern in the previous health assessment:

- (1) Air contamination due to volatilization of organic chemicals from contaminated surface water leachate seeps and uncontrolled discharge of landfill gases containing organic chemicals;
- (2) Groundwater contamination due to the contaminant plume in Cohansey/Kirkwood aquifer migrating off site, contaminated groundwater discharging to Holly Run, waste in contact with groundwater, and the potential for residential well contamination;
- (3) Leachate due to percolation into groundwater and surface seeps;
- (4) Physical hazards due to landfill gases potentially creating on- and off-site explosions and exposed waste; and
- (5) Surface water contamination due to Holly Run and Briar Lake water and sediment contamination and the potential for contaminant migration downstream of Briar Lake.

## Community Health Concerns

According to early documents, community residents were concerned about increased nosebleeds and respiratory problems. The New Jersey Department of Health (NJDOH) has conducted a series of studies from 1982 to 1985 to address such community health concerns. The summary of the studies states the following:

- residents living near GEMS Landfill had more respiratory complaints than persons living in other parts of Camden County;
- no increase in abnormal breathing was found among residents living near the site when compared to a control community several miles from GEMS Landfill. However, there was a trend suggesting breathing tests results were lower among persons living near GEMS than control subjects living in another part of Camden County; and
- no increase in medical or reproductive problems other than respiratory complaints was found among persons living near the site when compared to a control population living in another part of Camden County.

The overall conclusion according to NJDOH was that there was no evidence of increased disease risk among residents living adjacent to the site, nor the presence of chemicals at levels felt likely to cause adverse health effects. However, the increased respiratory and odor complaints indicate the need for corrective action. After corrective action has been completed, a reassessment of respiratory and odor complaints among residents living adjacent to the site is needed.

#### CURRENT SITE CONDITIONS

The most recent site visit was conducted on April 22, 1992, by Greg Ulirsch (ATSDR), James Pasqualo (NJDOH), Arthur Block (ATSDR Region II representative) and NJDEPE representatives. Health assessors observed that surface water runoff from the landfill continues to collect in Holly Run, a small stream that has been redirected during remediation of the landfill. Holly Run terminates at Briar Lake, which is near private residences. Inspection of both Holly Run and Briar Lake revealed discoloration (orange) caused by leachate from the landfill, and odors were detected emanating from both surface water features. Sampling done on leachate originating from the landfill has indicated high volatile organic compounds (VOCs). A slight orange sheen has been seen on Holly Lake (northwest of Briar Lake), but the former site manager believes that was an isolated event due to weather conditions.

The Landfill has undergone extensive remediation since the last visit to the site in August 1990. Landfill capping and regrading/revegetation of cover soils has been essentially completed (95% as of July 21, 1992). Additionally, systems for surface water control and gas collections were observed to be near completion. According to the NJDEPE on-site manager, collection systems for the GEMS Landfill represent the last operable unit for site remediation, and will be completed in FY 1993. The landfill is completely fenced and the presence of security personnel makes unauthorized access unlikely.

Both Holly Run and Briar Lake were fenced to prevent casual contact by area residents. There were no indications that either water body is used recreationally or frequented by residents for any purpose.

Air, groundwater, and surface water monitoring is on-going at the site. Data is available from recent air, groundwater and surface water monitoring. Data includes the following: (1) air sampling results provided by Roy F. Weston, Inc. - Lionville Laboratory; (2) surface water and sediment sampling of Holly Run (on-site and off-site), Briar Lake, and off-site lakes downstream, results provided by NET Atlantic, Inc.; (3) potable water sampling results provided by NJDOH and NJDEPE; and (4) groundwater monitoring wells sampling results provided by NYTEST Environmental Inc..

### **CURRENT ISSUES**

#### **Public Health Concerns**

There are five downgradient wells, which are not sealed because homeowners refused to do so. Two of the five show a slight increase in lead levels. Detected levels were below the Environmental Protection Agency's current action level of 50 ppb, but above the proposed action level of 15 ppb. All homes have been provided with an alternate source of water. The two wells are reported to be used for non-potable purposes, although the nature of use is unknown. According to the NJDEPE technical manager, NJDEPE has informed homeowners of the possibility of increased exposure to lead and the potential for adverse health effects.

#### **Community Health Concerns**

According to the site's technical manager, no community health concerns have been expressed to NJDEPE since the citizen's advisory group was formed and remediation begun. Past concerns about increased odors and increased chance of fires were addressed in the site's Construction Operations Plan.

### **CONCLUSIONS**

- ♦ EPA has completed or is continuing the following actions as recommended by ATSDR:
  - constructing a fence to restrict public access to the site,
  - monitoring groundwater and residential wells, and
  - sampling soil to determine the nature and extent of soil contamination.



- ◆ Based on available information, a public health assessment is not warranted at this time. Data from recent air, groundwater, and surface water monitoring needs to be evaluated to determine if remediation efforts will mitigate or prevent future adverse health effects.

#### **RECOMMENDATIONS**

- ◆ A Public Health Consultation is recommended to evaluate recent monitoring data (air, surface water, and groundwater).
- ◆ Continue monitoring surface waters and air for VOCs until remediation is complete.
- ◆ Continue monitoring private well water that is being used.

#### **Health Activities Recommendations Panel Statement**

The Public Health Review of the site was reviewed by the Health Activities Recommendations Panel on August 7, 1992. The panel's statement follows:

Data and information developed in the Site Review and Update have been evaluated to determine if follow-up actions are indicated. Further site evaluation is needed to determine public health actions.

## DOCUMENTS REVIEWED

Documents reviewed by ATSDR for this summary are as follows:

1. Gillig, RE and Lichtveld M. Health Assessment for GEMS Landfill NPL Site. Atlanta: Agency for Toxic Substances and Disease Registry (ATSDR), June 1989.
2. ATSDR Public Health Assessment Guidance Manual, Atlanta, GA. March 1992.
3. ATSDR Site Review and Update Guidance, Draft March 1992.
4. Trip Report (ATSDR), GEMS Landfill, Draft July 1992.
5. Site-file, GEMS Landfill, Atlanta: ATSDR.
6. NUS Corporation. Feasibility Study, Gloucester Environmental Management Services, Inc. (GEMS) Landfill Site, Gloucester Township, Camden County, New Jersey. April 1986.
7. U.S. EPA Region II. Record of Decision, Gloucester Environmental Management Services (GEMS) Landfill, Gloucester Township, Camden County, New Jersey. September 30, 1985.
8. New Jersey Department of Health, Environmental Health Protection Program. Survey of Health Complaints Near GEMS Landfill. 1985.