Health Assessment for

COMBE FILL NORTH LANDFILL

MOUNT OLIVE TOWNSHIP, NEW JERSEY

MAY, 1988

DRAFT

SUMMARY

The Combe Fill North Landfill National Priorities List (NPL) Site is located in Mount Olive Township, Morris County, New Jersey. There are 10,000 people living within a 3-4 mile radius of the site, most of their residences are located more than one mile away from the site. Volatile organic compound (VOC) and heavy metal contamination was present in the soil, sediment, surface water, and groundwater. The Record of Decision (ROD), signed in September 1986, provides for a cap, a drainage system, a methane venting system, a fence around the site perimeter, and a monitoring program to ensure the effectiveness of the remedial action. This remedial action should be protective of public health once complete; in the interim, site access should be restricted to help prevent exposures to site contaminants.

BACKGROUND

A. SITE DESCRIPTION

The Combe Fill North Landfill NPL Site is located in Mount Olive Township, Morris County, New Jersey. The 102-acre landfill operated from 1966 to 1981. In 1978 the landfill was purchased by Combe Fill Corporation (CFC). While under CFC management, the landfill had many violations of New Jersey solid waste administrative codes.

Concern about disposal practices at Combe Fill North caused the residents in the area to form a citizens' group: Save Mount Olive Township - Halt Environmental Rape (SMOTHER), in 1979. SMOTHER was actively involved in getting the site placed on the NPL. The data that was originally used to rank the site indicated contamination of much higher concentration than that detected during the Remedial Investigation (RI).

In 1981 CFC went bankrupt, before the landfill was properly closed. The ROD, signed in September 1986, provides for a cap to be placed over the 65-acre refuse disposal area, the installation of a drainage system, the installation of a methane venting system, the construction of a fence around the site perimeter, and implementation of a monitoring program to ensure the effectiveness of the remedial action. Currently, the remedial action is in the design phase. Construction is scheduled to begin in the fall of 1988.

B. SITE VISIT

ATSDR has not made a site visit to date.

ENVIRONMENTAL CONTAMINATION AND PHYSICAL HAZARDS

A. ON-SITE CONTAMINATION

There was some VOC and heavy metal contamination present on-site in the groundwater. Compounds that were detected include: methylene chloride at 13.4 ug/L, hexachlorobenzene at 3.3 ug/L, benzo[a]pyrene at 6.1 ug/L, bis (2-ethylhexyl) phthalate (DEHP) at 56.6 ug/L, and zinc at 30 ug/L. During the air sampling, methane and other gases were detected.

B. OFF-SITE CONTAMINATION

Off-site contamination found in the groundwater included: trichloroethene (TCE) at 98 ug/L, methylene chloride at 20 ug/L, DEHP at 93.8 ug/L, cyanide at 38 ug/L, and zinc at 770 ug/L. The maximum concentrations of methylene chloride and TCE were detected in the potable well at Budd Lake School in 1985 (the school was used by the school board). Additional sampling of the well was done, but the concentrations were never repeated. It was assumed that the concentrations reported were a result of sampling error.

C. PHYSICAL HAZARDS

A potential physical hazard is the generation and migration of gas (methane and other gases commonly found at landfills). This gas can be highly explosive if allowed to accumulate in an enclosed environment, like the Redi-Crete and Gravel Mine buildings located south of Goldmine Road.

DEMOGRAPHICS OF POPULATION NEAR SITE

The area surrounding Combe Fill North is wooded. There are 10,000 people living within a 3-4 mile radius of the site, most of these residences are located more than one mile away from the site. There is also some farmland in the area.

EVALUATION

A. SITE CHARACTERIZATION

1. Environmental Media

Soil-gas monitoring has not been conducted at this site. It may be helpful in determining if there is concern for methane or other gases reaching homes located near the site, thus indicating a need for further remediation.

2. Land Use and Demographics

If ATSDR were provided additional information on the individuals living near the site, it would be helpful in defining possible exposures to sensitive populations (i.e., children and elderly) as well as defining the size of the potentially impacted population.

3. Quality Assurance/Quality Control

Conclusions contained in this Health Assessment are based on the information received by ATSDR. The accuracy of these conclusions is determined by the availability and reliability of the data.

B. ENVIRONMENTAL PATHWAYS

The soil on-site was contaminated with low concentrations (below health concern concentrations) of VOC and heavy metals. The proposed cap should prevent any exposure to the soil, provided it is properly designed. There did not appear to be any contamination of significant levels in the sediment or surface water.

There have been problems with leachate seeps from the landfill in the past. Presently, the only seep is at the top of the landfill. The cap, if properly maintained, should prevent such seeps. Also, the cap will

prevent penetration of the waste by water from runoff and precipitation reducing the chance that leachate will be formed. A fence will also be installed to restrict access to the site.

Surface runoff has been contaminated in the past by passing across the surface of the landfill (which may have suffered erosion, thereby exposing the waste) and then draining into the creeks that border the site to the east and west. The cap will provide a barrier between the water and the waste. The drainage system will provide a controlled outlet for the runoff generated. The creeks which have received low level contamination in the past (DEHP 47 ug/L, zinc 30 ug/L, and lead 10 ug/L) may be revitalized through self-cleansing.

The groundwater on-site is significantly contaminated. However, there is no known use of the water. Off-site the groundwater shows some contamination in monitoring wells close to the site but there is no clear evidence of a plume generated by the landfill. Residential wells sampled during the RI did indicate low level contamination in some of the potable wells off-site.

The air survey conducted at the site indicated the presence of methane as well as toluene (132 ug/m^3), tetrachloroethane, trichlorofluoromethane, and 1,1,2-trichloro-1,2,2-trifluoroethane. The levels of the VOC's present (other than toluene) were not provided. There is a potential for the contaminants to volatilize through the soil, into the air, or to volatilize and follow a plume of methane gas (generated by anaerobic bacteria within the landfill) as it moves in the soil-air (USEPA 1986). The soil-gas monitoring would help to determine whether this has been occurring.

C. HUMAN EXPOSURE PATHWAYS

Human exposure pathways that are of potential public health concern until the remedial action is complete are inhalation of vapors generated on-site, and dermal exposure to leachate or contaminated surface runoff. The actions implemented as a result of the ROD will adequately remove the potential for human exposure to the contamination present at the site, with the possible exception of gas migration off-site. Continued monitoring will indicate any changes that occur in the groundwater quality.

PUBLIC HEALTH IMPLICATIONS

There is minimal public health concern regarding this site once the remedial measure is completed, since there is no foreseen exposure to contamination (except possible exposure to gas migrating from the site).

CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

This site is of potential health concern because of the risk to human health resulting from possible exposure to hazardous substances at concentrations that may result in adverse health effects. As noted in the Environmental Pathways and Human Exposure Pathways sections above, human exposure to the leachate, contaminated surface runoff, and vapors released on-site may be of public health concern. The remedial alternatives chosen, as indicated by the ROD, are protective of human health, there is no foreseen exposure to contamination (except possible inhalation exposure to gas migrating from the site).

B. RECOMMENDATIONS

1. Continue the monitoring program for the surface water and the groundwater as described in the ROD. Notify ATSDR if levels of concern are noted in the potable wells. The monitoring program should also include soil-gas monitoring.

2. Provide the information that was requested in the Data Needs and Evaluation section.

3. In accordance with Comprehensive Environmental Response, Compensation, and Liability Act as amended, Combe Fill North Landfill Site, Mount Olive Township, Morris County, New Jersey has been evaluated for appropriate follow-up with respect to health effects studies. There are no indications that human exposure to on-site/off-site contaminants may currently be occurring, and therefore, this site is not being considered for follow-up health effects studies at this time.

PREPARERS OF REPORT

Environmental Reviewer: Susan L. Mueller, Environmental Health Specialist, Health Sciences Branch.

Regional Representative: Denise Johnson, ATSDR Regional Representative Region II.

REFERENCES

1. Feasibility Study Combe Fill North Landfill Site, Mount Olive Township, Morris County, New Jersey, Task II - "Site Investigations" Report, May 1986.

2. Record of Decision Remedial Alternative Selection, Combe Fill North Landfill, Mount Olive Township, New Jersey, September 1986.

3. Summary of Remedial Alternative Selection, Combe Fill North Landfill, Mount Olive, New Jersey.

4. USEPA Leachate Collection and Gas Migration and Emission Problems at Landfills and Surface Impoundments (PB 86-162 104/AS) 1986.