

Health Assessment for

SOUTH BRUNSWICK LANDFILL

CERCLIS NO. NJD980530679

MIDDLESEX COUNTY, NEW JERSEY

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

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HEALTH ASSESSMENT

South Brunswick Landfill
Middlesex County, New Jersey

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

Summary

South Brunswick Landfill (SBL), is located along New Road, approximately one-half mile northwest of U.S. Route 1 in Middlesex County, New Jersey. Based on data from 1980 and 1981, the onsite surface soils, groundwater, and leachate were contaminated with volatile organic compounds (VOC's), acid and base/neutral extractable organics, and metals.

The remedial action plan completed in 1985 included construction of a slurry wall, a leachate collection/treatment system, and installation of a clay cap over the site and a gas venting system. The plan also provided for monitoring the effectiveness of the leachate collection system over a 30-year period. In general, the plan appears adequate for protecting the public from any of the contaminants currently contained onsite.

An area immediately southwest of the site received leachate in the surface soils prior to the remediation. It is recommended that before this area is used for any purpose requiring entry, that the level of contaminants in its surface soils be evaluated. In addition, no data were provided to confirm the absence of contaminants in offsite groundwater, or details on what use, if any, is being made of it. It is recommended that if water from wells within the immediate site area is to be used for purposes involving ingestion or dermal contact, that the degree of contamination of the water be evaluated prior to such use.

Background

SBL is a National Priorities List site. It covers an area of approximately 68 acres. It is located along New Road, approximately one-half mile northwest of U.S. Route 1 in Middlesex County, New Jersey. Access to the site is by New Road. SBL was used as a landfill for over 20 years before its closure on December 31, 1978, by the New Jersey Department of Environmental Protection. The wastes disposed of at the site were described as primarily municipal wastes, along with a more limited but unknown amount of hazardous wastes, including pesticides and organic chemicals.

On April 5, 1982, the Environmental Protection Agency (EPA) entered into an agreement with the owner of SBL, Browning-Ferris Industries, concerning remedial efforts to be pursued at the site. A plan was devised to construct a leachate containment and collection system which would control leachate migration and provide for an acceptable method of disposing of the leachate. This Remedial Action Plan was implemented and work completed in September 1985. In addition to the leachate collection/treatment system, a clay cap was installed over the site, as well as a venting system. The plan also called for monitoring the effectiveness of the leachate treatment system over a period of 30 years.

Environmental Contamination and Physical Hazards

A. Onsite contamination

The maximum contaminant levels observed in onsite media samples taken in 1980 to 1981 are summarized in Table 1.

B. Offsite contamination

Data identifying and quantifying contaminant levels for offsite media were not provided. Any data that are available which describe the levels of contaminants in, and the usage being made of offsite groundwater, are needed to evaluate this portion of the Health Assessment.

C. Physical Hazards

Information received with the Record of Decision dated September 30, 1987, confirmed that EPA intends to require fencing of the periphery of the site to protect the leachate collection and venting systems. This should limit access to the site to those individuals equipped with appropriate protective devices and an awareness of the possibility of any flammable or explosive gases around vented areas.

Demographics of Population Near Site

No detailed information on the number of residences in the areas adjacent to the site was provided, except for a map showing the location of the site, with dots which appeared to represent residences located as close as 100 to 200 feet from the site. No mention was made of any other use currently being made of the land around the site.

Evaluation

A. Site Characterization (Data Needs And Evaluation)

1. Environmental Media

The data summarized in Table 1 were quite adequate as a basis for establishing the need for the Remedial Action Plan. The concentrations of contaminants in onsite media clearly indicated the need for such a plan.

TABLE 1: MAXIMUM CONCENTRATIONS OF CONTAMINANTS⁽¹⁾
SOUTH BRUNSWICK LANDFILL

Contaminant	Monitoring Wells (ug/L)	Leachate (Surface) (ug/L)	Sediments (Surface) (ug/kg)
acenaphthene	-	-	30
anthracene	-	-	600
benzene	186	57	4.7
bis(2 ethylhexyl)phthalate	-	-	4500
chlorobenzene	102	23	7.6
chloroethane	77	20	-
chloroform	105	-	-
chrysene	-	-	280
1,2dibenzoanthracene	-	-	280
di-N-butylphthalate	-	-	310
dichlorodifluoromethane	17	20	-
1,1-dichloroethane	1254	199	-
1,2-dichloroethane	64	-	-
1,1-dichloroethylene	77	-	-
1,2-trans-dichloroethylene	303	178	-
diethylphthalate	246	185	190
dimethylphthalate	214	14	-
ethylbenzene	160	40	63
fluoranthene	-	-	330
isophorone	11	4572	-
methylene chloride	2215	475	-
naphthalene	-	-	55
nitrobenzene	107	-	-
phenanthrene	-	-	600
phenol	3925	1134	-
pyrene	-	-	270
tetrachloroethylene	70	-	-
toluene	1208	325	130
1,1,1-trichloroethane	28	11	-
trichloroethylene	237	20	-
trichlorofluoromethane	35	76	33
vinyl chloride	244	-	-
			(mg/kg)
antimony	3	3	6.7
arsenic	29	34	6.1
beryllium	10	10	1.0
cadmium	9	10	0.7
chromium	78	180	30
copper	340	210	230
mercury	5	1.2	0.05
lead	400	720	160
nickel	300	920	19
selenium	27	25	6.7
thallium	0.9	28	0.14
zinc	2500	5000	460

(1) from data collected in 1980-81n

Data are needed to characterize the degree of contamination, if any, and the use being made of offsite groundwater. Additional data are also needed to establish whether or not the offsite topsoils immediately south of the site, which received leachate from the site prior to its remediation, are still contaminated. The original leachate contaminants may have been diluted, or possibly deposited and concentrated to an unknown extent, in the sediments of this area.

2. Land Use and Demographics

The most recent information received gives indication that various areas adjacent to the site are being considered for residential development. Additional demographic data providing details on the use to be made of the area south of the site (specifically the area which received leachate contamination before remediation occurred) are needed in order to determine the health implications of that particular area.

3. Quality Assurance and Quality Control (QA/QC)

Compliance with QA/QC protocols during the Remedial Investigation/Feasibility Study must be evaluated by EPA. 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

Considering the concentrations of VOC's reported in the onsite soils and groundwater, the venting and leachate collection systems functioning together should effectively discharge the VOC's without producing toxic concentrations of vented gases. The contaminants are discharged from the leachate collection system and are further diluted upon entry into the municipal drainage system. Analysis of the effluent, as monitored in 1986, indicated acceptably low levels of contaminants.

As this system continues to function, and its effectiveness continues to be monitored, the levels of contamination of onsite groundwater should decrease. However, until data on the offsite groundwater are accumulated and provided for evaluation, this aspect of the Health Assessment cannot be completed. Because contaminants were received by the offsite groundwater for a long period before remediation was completed, the current level of contamination should be established.

C. Human Exposure Pathways

Currently, potential human exposure pathways appear to be limited to ingestion of, dermal contact with, or inhalation of volatile contaminants from offsite groundwater, and ingestion or contact with surface soil from the offsite area which received leachate before remediation was completed.

Public Health Implications

In general, the remedial action plan now in operation appears adequate to protect the public health. However, it is recommended that if groundwater taken from the immediate site area is to be used for drinking or purposes involving dermal contact, the quality of the water should first be confirmed by testing. Also, if the area immediately south of the site which received leachate drainage before the remedial action plan was implemented is to be used for residential purposes, its surface soil should be evaluated.

Conclusions and Recommendations

1. In addition to implementation of the remedial action plan, it is recommended that contaminant levels in offsite groundwater, and sediments from areas which received leachate prior to remediation, be evaluated prior to their being used for any purpose which might involve ingestion or dermal contact.
2. It is recommended that the proposed peripheral fencing of the site be completed to protect the leachate collection and the venting systems, and also to keep trespassers off the site.

PREPARER OF REPORT

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REFERENCES

1. Hazardous Waste Site Investigation, Princeton Disposal, South Brunswick, New Jersey, dated June 11-12, 1980, by USEPA Surveillance and Analysis Division, Region 2, New York, New York 10007.
2. Hydrogeological Investigation, South Brunswick Landfill, South Brunswick Township, New Jersey, dated June 1981, by Wehran Engineering Corp., Middletown, New York.
3. Treatability Study for BFI South Brunswick Landfill Leachate Evaluation, Phase I & II final Report, dated August 1981, by Princeton Aqua Science, New Brunswick, New Jersey.
4. South Brunswick Township Landfill Remedial Action Plan, dated February 1983, by Wehran Engineering.
5. South Brunswick Township Landfill Remedial Action Plan Addendum, dated September 1983, by Wehran Engineering.
6. Reference composed of 8 reports on analyses of discharge samples from South Brunswick Landfill dated from July 1986 to February 1987.
7. Reference composed of 8 reports on analyses of discharge samples from South Brunswick Landfill dated from April-October 1987.
8. Declaration Statement, Record of Decision, Browning-Ferris Industries South Brunswick Landfill and Appendices, dated September 30, 1987.