Global Sanitary Landfill
Old Bridge Township, New Jersey
Region 2
NJD063160667

Site Exposure Potential

The Global Sanitary Landfill site occupies 24 hectares in a residential area of Old Bridge Township, New Jersey (Figure 1). During the landfill's operation from 1968 through 1984, municipal and non-chemical industrial wastes were disposed of. Reportedly, drums of hazardous materials have been buried on-site. The main section of the landfill is a 21-hectare mound ranging in elevation from 1.5 to 4.6 meters above mean sea level (MSL) at

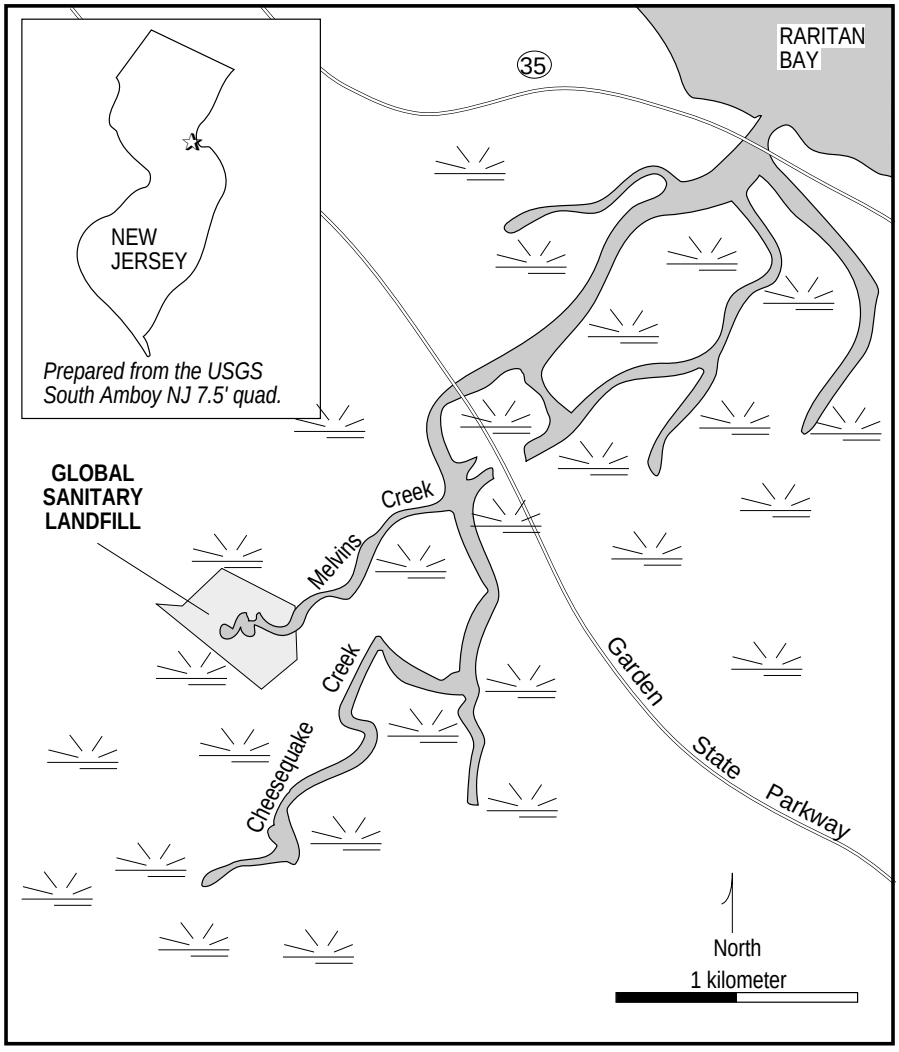

Figure 1. The Global Sanitary Landfill site in Old Bridge Township, New Jersey.

the base, to 27 to 33 meters above MSL at the top. The flattop area occupies five hectares. The mound contains 1.4 million m^3 of waste. There is a soil cover of unknown thickness on the mound but, due to the lack of vegetation, the soil cover is eroding, forming gullies on the side slopes and exposing waste materials. A perimeter dike has been constructed along

the northeast and southwest toes of the landfill. A three-hectare tract of land next to the northwest portion of the mound contains solid waste up to four meters deep. An estimated 60 drums of hazardous materials are buried there (Killam 1988).

The landfill is bordered to the northeast, southeast, and southwest by tidal wetlands in the drainage basin of Cheesequake Creek. Melvins Creek drains the site and enters Cheesequake Creek 300 meters below the landfill. Cheesequake Creek flows into Raritan Bay and the Atlantic Ocean 3 km northeast of the site. In 1984, a slope failure on the southeast side of the landfill filled a 1.6-hectare section of the adjoining wetlands. This area has subsequently been filled, regraded, and topped with soil cover. Elevations of the adjacent wetlands range from one to two meters above MSL. Leachate seeps and ponded leachate have been frequently observed flowing from the landfill into adjoining wetlands (Killam 1988).

Possible contaminant migration pathways to NOAA trust resources are surface water runoff and groundwater discharge to Melvins and Cheesequake creeks.

Site-Related Contamination

The contaminants of concern to NOAA include both organic compounds and trace metals (Table 1). The pesticide heptachlor was found in groundwater at concentrations that

Table 1. Maximum concentrations of selected contaminants at the Global Sanitary Landfill site (Killiam 1988); AWQC for the protection of freshwater aquatic life (EPA 1986); concentrations in μg/l.

Contaminant	Leachate	Groundwater	Surface Water	AWQC Acute	AWQC Chronic
ORGANIC COMPOUNDS					
Volatiles					
chlorobenzene	15.3	270	ND	250*	50*
Semi-volatiles					
naphthalene	36	150	ND	2,300*	620*
phenanthrene	27.2	20	ND	N/D	N/D
Pesticides/PCBs					
Aroclor 1260	16	1.2	ND	2.0	0.014
heptachlor	ND	71	ND	0.52	0.0038
4,4 DDD	0.082	ND	ND	0.06*	0.001
lindane	N/A	0.14	N/A	2.0	0.08
INORGANIC SUBSTANCES					
Trace Metals					
arsenic	110	8.6	5.4	360	190
chromium	496	165	5.6	16	11
copper	319	69.9	4.6	18 †	12 †
lead	5,530	209	7.8	82 †	3.2 †
nickel	180	235	18	1,400 †	160 †
silver	<4.0	<4.0	2.5	4.1 †	0.12

* LOEL
† Hardness-dependent (based on 100 mg/l $CaCO_3$)
ND: Not detected
N/D: Not determined
N/A: Not available

exceeded AWQC for the protection of freshwater aquatic life by four orders of magnitude. The PCB Aroclor 1260 was measured in leachate and groundwater at concentrations that exceeded AWQC. Lead, chromium, nickel, and copper measured in groundwater and in leachate were observed at concentrations that exceeded their respective AWQC (EPA 1986; Killam 1988). No data were available on soil or sediment contamination related to the site.

NOAA Trust Habitats and Species in Site Vicinity

Melvins and Cheesequake creeks and the adjacent wetlands are estuarine habitats with a salinity ranging from 5 to 16.5 ppt. No information was available on the aquatic habitats of Melvins Creek. Cheesequake Creek is a continuously flowing, low-gradient stream an average of 12 meters wide and 0.4 meters deep. The substrate consists of silt and the water quality is fair due to urban runoff (Andrews 1989).

Limited information was available regarding the use of the Cheesequake Creek drainage basin by marine and anadromous fish species. Marine species that may be present in the creek include bluefish, weakfish, and blue crab (Table 2) (Andrews 1989). Catadromous American eel are probably present throughout the wetland area. Numerous NOAA trust resources use the Raritan Bay as nursing and adult area, and as a migratory route (USFWS 1980). Commercial fishery for clams has been banned in the Raritan Bay because of high concentrations of various contaminants in the bay.

Table 2. NOAA trust resource use of Cheesequake Creek and Raritan Bay (USFWS 1980; Andrews 1989).

Species	Cheesequake Creek and Melvins Creek	Raritan Bay
INVERTEBRATES		
blue crab	S,N,A	N,A
hard clams		S,N,A
soft shell clams		S,N,A
FISH		
American eel	A	A,M,C
American shad		M
Atlantic croaker		A,C,R
Atlantic menhaden		A,C
Atlantic sturgeon		M
bay anchovy		S,N,A
blueback herring		M
bluefish	N,A	N,A,C,R
northern buffer		A,R
northern kingfish		A,R
scup		A,C,R
silver perch		S,N,A,R
spot		A,R
striped bass		A,M,C,R
summer flounder	N,A	S,N,A,C,R
tautog		A,R
weakfish	N,A	S,N,A,C,R
white perch		A,M,C
winter flounder	N,A	S,N,A,R

S : Spawning area; N : Nursery area; A : Adult area; M : Migratory route; C : Commercial fishery; R : Recreational fishery

Response Category: State Lead

Current Stage of Site Action: RI/FS Workplan

EPA Site Manager

Jim Schmidtberger 212-264-6479

NOAA Coastal Resource Coordinator

John Lindsay 404-347-5231

References

Andrews, B., New Jersey Department of Fish and Game, Newark, personal communication, January 23, 1989.

EPA. 1986. Quality Criteria for Water. Washington, D.C.: Office of Water Regulations and Standards, Criteria and Standards Division. EPA 440/5-86-001.

Killam Associates. 1988. Focus Feasibility Study, Global Landfill, Old Bridge, New Jersey. Edison, New Jersey: U.S. Environmental Protection Agency.

USFWS. 1980. Atlantic coast ecological inventory: Newark. Washington, D.C.: U.S. Fish and Wildlife Service. 1:250,000 scale map.