

**Bush Valley Landfill  
Abingdon, Maryland  
Region 3  
MDD980504195**

**Site Exposure Potential**

The Bush Valley Landfill is an inactive landfill on 12 hectares in Abingdon, Maryland (Figure 1). Before 1977, the landfill was allegedly used for open burning of trash. From 1977 to 1982, the landfill had a permit from the State of Maryland to accept municipal wastes. According to American Cyanamid, the landfill also received industrial process wastes (EPA 1986a).

Between 1979 and 1984, the State of Maryland issued an Administrative Order regarding the landfill's operating procedures and closure (EPA 1986a). The owner never complied fully with the orders; the landfill is only partially capped and there are no diversion ditches or leachate collection systems.

The landfill is unlined and rises 7.5 meters above the surrounding area. The north slope and the top are only sparsely vegetated because erosion gullies have formed. The south face is well-vegetated. Leachate seeps have been observed along the northern and southern slopes. Two unlined basins on the east side of the landfill collect surface runoff. One of the basins discharges into the adjacent stream, Bynum Run, via a pipeline. The shallow groundwater below the landfill flows southeast towards the lower reach of Bynum Run and the Bush River (NUS 1985).

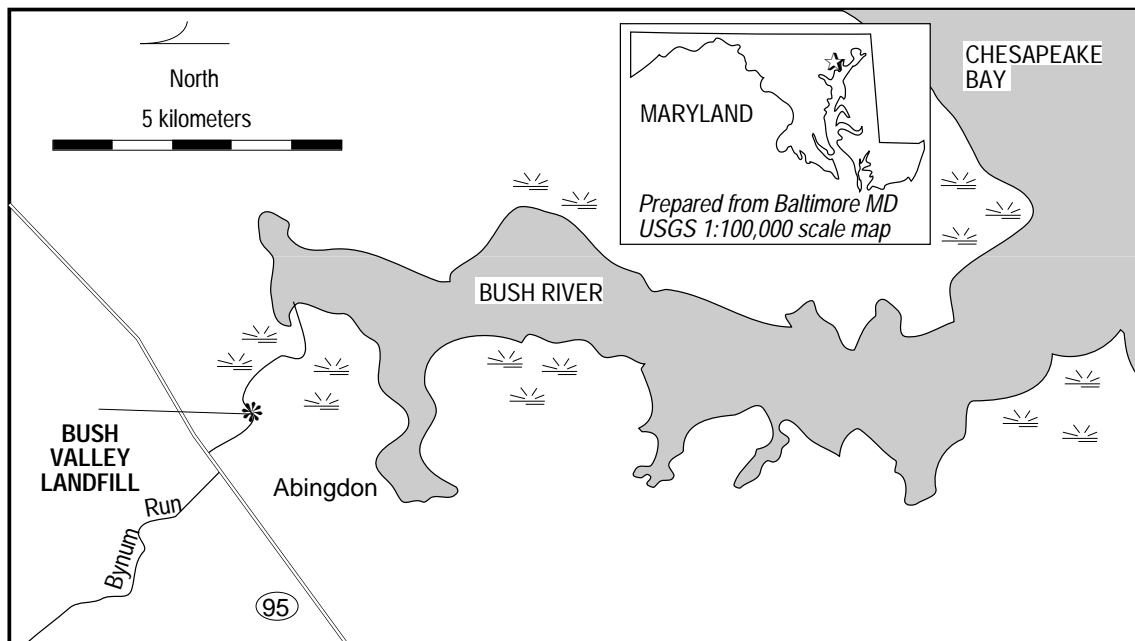


Figure 1. The Bush Valley Landfill in Abingdon, Maryland.

Bynum Run is about 90 meters north of the site. The floodplain of Bynum Run is wooded and slopes an average of five percent towards the stream (NUS 1985). Part of the property is within the 100-year floodplain. A 49-hectare marsh is 60 meters east of the site. Bynum Run flows southeast for 2 km before entering the Bush River, which discharges into Chesapeake Bay 16 km below the site.

Contaminant migration pathways to NOAA trust resources are surface water runoff, leachate discharges, and groundwater flow to Bynum Run.

### Site-Related Contamination

Trace metals, the contaminants of concern at the site, were observed in groundwater at concentrations exceeding AWQC for the protection of freshwater aquatic life (Table 1) (NUS 1985; EPA 1986b). Zinc was also measured in leachate and silver was measured in water collected in Bynum Run downstream of the site at concentrations that exceeded the respective acute freshwater aquatic life AWQC. None of the concentrations of trace metals measured in sediment collected from the leachate areas, the sediment basins, or in Bynum Run exceeded the levels observed in natural sediments (EPA 1983).

Table 1. Maximum concentration of selected contaminants at the Bush Valley Landfill site (NUS 1985); AWQC for the protection of freshwater aquatic life (EPA 1986b); concentrations in µg/l.

Contaminant	Groundwater	Leachate	Bynum Run Downstream		AWQC	
			Surface water	Acute	Chronic	
arsenic	75	N/A	N/A	360	190	
cadmium	3.0**	N/A	N/A	3.9*	1.1*	
chromium	809	N/A	N/A	16	11	
copper	819	N/A	N/A	18*	12*	
lead	164	N/A	N/A	82*	3.2*	
mercury	0.63	N/A	N/A	2.4	0.012	
nickel	506	N/A	N/A	1400*	160*	
silver	N/A	N/A	10	4.1*	0.12	
zinc	668	1210	N/A	120*	110*	

\* Hardness-dependent (based on 100 mg/l CaCO<sub>3</sub>) ; \*\* Questionable data ; N/A: Not available

### NOAA Trust Habitats and Species in Site Vicinity

The marsh adjacent to the site is a tidally influenced, brackish, cattail/arrowhead marsh (EPA 1986a). Bynum Run is a small stream five meters wide and 0.15 meters deep with a substrate of gravel and cobble. The lower part of Bynum Run, 500 meters downgradient from the site, is tidally influenced. Benthic community structure near the site indicates good to excellent water quality; several anadromous fish species use the mouth of Bynum Run (Table 2). Catadromous American eel may be present in the wetland and creek adjacent to the site, although their presence has not been documented. Bynum Run is classified by the Maryland Department of Natural Resources as a Class III natural trout stream. There are small populations of trout in the free-flowing stretch of Bynum Run and the creek is used for recreational fishery (Butler 1988).

The Bush River is an estuarine tidal system with salinity ranging from 0.5 to 5 ppt. Near its confluence with Bynum Run, the upper reaches of the Bush River range from 0.9 to 3.5 km wide and from 0.3 to 1.8 meters deep (Garrison 1988). The substrate is silty sand. Water quality in the upper reaches of the Bush River is fair, due to urban and agricultural runoff, sewer overflows, and poor flushing of the tidal river (MDHMH 1987). Although the lower part of the tidal Bush River is Class II (open for shellfish harvesting), it is not fished because the natural population is too small. The Bush River supports a diverse population of marine and anadromous fish species, benthic organisms, and zooplankton (Table 2) (USFWS 1980).

Table 2. NOAA trust resource use of the Bush River and the mouth of Bynum Run (USFWS 1980; VIMS 1983).

Species	Spawning Area	Nursery Area	Adult Area	Migration Route	Commercial Fishery	Recreational Fishery
alewife	X	X		X	X	X
American eel			X		X	X
American shad		X		X	X	X
Atlantic sturgeon				X		
blueback herring	X	X		X	X	X
gizzard shad	X	X		X	X	X
hickory shad	X	X		X		X
striped bass				X	X	X
white perch	X	X	X	X	X	X

**Response Category:** State Enforcement Lead

**Current Stage of Site Action:** RI/FS Workplan

**EPA Site Manager**

Garth Conner	215-597-0429
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**NOAA Coastal Resource Coordinator**

Alyce T. Fritz	215-597-3636
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**References**

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