

**Gallups Quarry
Plainfield, Connecticut
Region 1
CTD108960972**

Site Exposure Potential

The Gallups Quarry occupies nine hectares in Plainfield, Connecticut (Figure 1). The site was used as an unlicensed chemical waste disposal area from 1974 to 1977. Before 1974, it was used for gravel mining. Chemicals were disposed of in three distinct locations on the site: a seepage bed that covers an area of 180 m², a secondary barrel and liquid burial area covering 0.03 hectares, and a 0.2-hectare chemical waste lagoon and primary barrel disposal pit. An unknown quantity of low-pH liquids containing various trace metals and dyes was disposed of in the seepage bed. The secondary barrel and liquid burial area consists of a linear trench in which barrels and free liquids were deposited and covered with soil in at least two layers. Two hundred barrels were uncovered in the area. Twelve hundred barrels of mixed chemicals were disposed of in the southern part of the waste lagoon/barrel disposal pit. The northern part of the pit was used for the disposal of an unknown quantity of free liquid wastes (Fuss & O'Neill 1979).

There is evidence that various liquids were dumped on the ground in and around the primary and secondary barrel locations. The stored barrels leaked over the two barrel sites after being removed from the pits (Fuss & O'Neill 1979).

The site has numerous excavations and is largely devoid of any vegetation (Fuss & O'Neill 1979). The nearest downslope surface water body, Mill Brook, is 150 meters north of the site. Mill Brook flows approximately 5 km before it enters the Quinebaug River. The Quinebaug River discharges into Thames River 23 km further downstream. The Thames River empties into the Atlantic Ocean 50 km below the site. The groundwater flows radially from the center of the site to the north and west and discharges ultimately into Mill Brook (Fuss & O'Neill 1979). Extensive contamination of the groundwater has been observed, extending 135 meters west of the pits. Discharge of contaminated groundwater into Mill Brook was observed in spring and fall 1978.

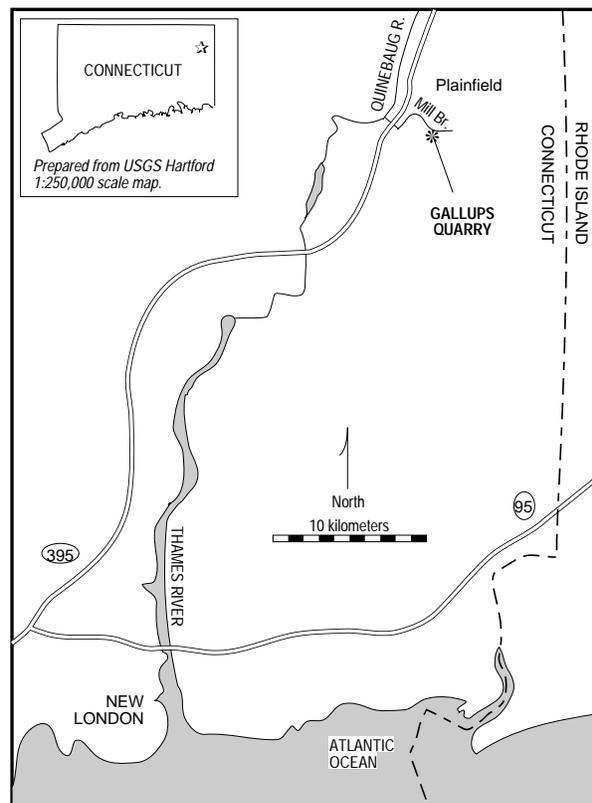


Figure 1. The Gallups Quarry site in Plainfield, Connecticut.

The primary contaminant migration pathways are surface runoff and groundwater flow to Mill Brook .

Site-Related Contamination

The contaminants of primary concern to NOAA are trace metals and VOCs. All of the trace metals detected in the groundwater were at concentrations that exceeded AWQC for the protection of freshwater aquatic life (Table 1) (Fuss & O'Neill 1979; EPA 1986). Mill Brook surface waters showed concentrations of cadmium, chromium, nickel, lead, and zinc exceeding AWQC. High concentrations of several VOCs were observed in on-site groundwater. The concentration of tetrachloroethylene exceeded LOEL.

Table 1. Maximum concentrations of contaminants at the Gallups Quarry site (Fuss & O'Neill 1979); AWQC for the protection of freshwater aquatic life (EPA 1986); concentrations in µg/l.

Contaminant	Groundwater	Mill Brook Surface Water	AWQC	
			Acute	Chronic
ORGANIC COMPOUNDS				
<u>Volatile</u>				
ethyl acetate	5,000	N/A	N/D	N/D
isopropanol	5,000	N/A	N/D	N/D
tetrachloroethylene	20,000	N/A	5,280*	840*
toluene	10,000	N/A	17,500*	N/D
INORGANIC SUBSTANCES				
<u>Trace Metals</u>				
cadmium	22,100	10	3.9†	1.1†
chromium	5,390	15	16	11
copper	485,000	<10	18†	12†
nickel	91,700	480	1400†	160†
lead	N/A	230	82†	3.2†
silver	36	<2	4.1†	0.12
zinc	270,000	2310	120†	110†
* LOEL				
† Hardness-dependent (based on 100 mg/l CaCO ₃)				
N/D: Criteria not developed				
N/A: Not available				

Trust Habitats and Species in Site Vicinity

Habitats of interest to NOAA include Quinebaug River and Thames River. The Quinebaug River is undergoing restoration for anadromous fish. Atlantic salmon fry are stocked in the tributaries of the Quinebaug River but not in Mill Brook. It is expected that sea run brown trout, alewife, and blueback herring will use the aquatic habitats of the river when the restoration is completed in the 1990s. Several anadromous fish species, including American shad, sea run brown trout, alewife, blueback herring, rainbow smelt, striped bass, and white perch use the Thames River.

Mill Brook, the creek flowing adjacent to the site, is a small, continuously flowing, low-gradient creek with a large wetland area adjacent. At present, there are no known anadromous fish species utilizing the creek. In addition, it is unknown if catadromous American eels are present in Mill Brook (Schluntz 1988). The extent to which anadromous fish will use Mill Brook after the restoration is unknown.

Response Category: Undetermined

Current Stage of Site Action: RI/FS Workplan

EPA Site Manager

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References

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

Fuss & O'Neill Inc. 1979. Untitled report regarding the hydrology and contamination of the Gallups Quarry, Plainfield, Connecticut.

Schluntz, E., fisheries biologist, Connecticut Department of Environmental Protection, Marlborough, Connecticut, personal communication, December 19, 1988.