

**GBF, Inc. Dump
Antioch, California
Region 9
CAD980498562**

Site Exposure Potential

The GBF Dump site is located on a 25-hectare property in Antioch, California (Figure 1). From 1960 to 1974, 24 hectares of the GBF site were covered by ten solar evaporation ponds used for the disposal of hazardous liquid wastes. These unlined, uncovered ponds were a deliberate attempt to allow wastes to evaporate into the air and percolate into the ground. Wastes disposed of in these ponds included waste oils, chlorinated and non-chlorinated solvents, acids, pesticides, PCBs, and beryllium and phosphorous wastes. There is little documentation of the total volume of these materials, but it has been reported that 4,655,500 liters of liquid waste were disposed of in these ponds over a 17-month period in 1973 and 1974. Concentrations of organic chemicals in the ponds were frequently high enough to burn; at least three major fires were documented on the site in the early 1970s. In 1974, the California Central Regional Water Quality Control Board (CRWQCB) ordered the site closed because of concerns that site operations might endanger groundwater in the area. Site closure consisted of filling the ponds with earth and sealing the surface with a clay layer (EPA 1987).

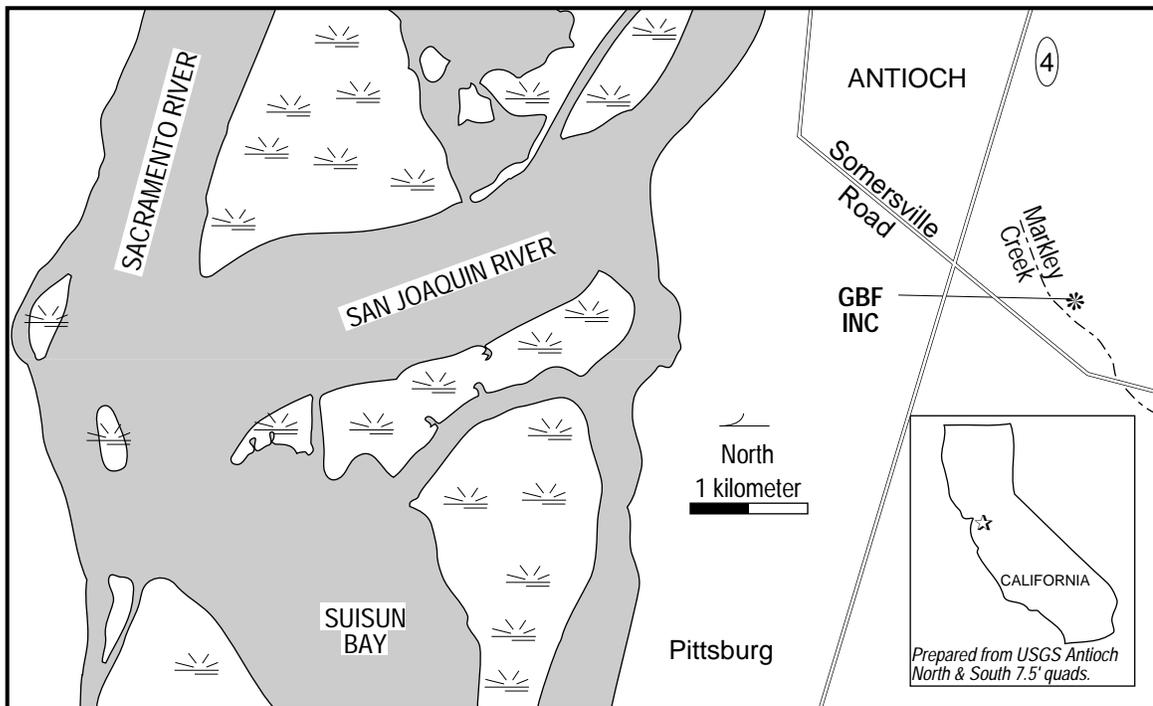


Figure 1. The GBF, Inc., Dump site in Antioch, California.

Markley Creek is an intermittent stream 60 meters northwest and downslope of the site (EPA 1987). The creek ceases one kilometer downstream from the site (USGS 1978, 1980), but the stream may reach the San Joaquin River, 3.5 km from the site via a small ditch (Garcia 1987). This ditch is not shown on U.S. Geological Survey topographical maps or in the documents reviewed. The San Joaquin River merges with the Sacramento River before entering Suisun Bay, 3.5 km further downstream. Suisun Bay connects the delta region of the Sacramento and San Joaquin rivers with San Francisco Bay.

Groundwater at the site is present at depths ranging from 6 to 100 meters below the ground surface. Regional groundwater flows north towards the San Joaquin River and Suisun Bay (EPA 1987).

Contaminant migration pathways include surface water runoff to Markley Creek and groundwater flow to the San Joaquin River.

Site-Related Contamination

The contaminants at the site of primary concern to NOAA are trace metals, pesticides, and VOCs. Arsenic, chromium, lead, and mercury were measured in on-site groundwater in concentrations that exceeded AWQC for the protection of saltwater aquatic life (Table 1) (CRWQCB 1986a,b; EPA 1986). Two of several VOCs and pesticides observed in groundwater exceeded LOEL (Clement 1985; CRWQCB 1986b). 1,2-dichloropropane and chloroform in groundwater exceeded LOEL (CRWQCB 1986a,b; EPA 1986). No data were available regarding the levels of contaminants in on-site soil. PCBs have been disposed of at the site, but no analyses for these substances have been performed.

Table 1. Maximum concentrations of selected contaminants at the GBF, Inc., site (CRWQCB 1986 a,b); AWQC for the protection of saltwater aquatic life (Clement 1985; EPA 1986); concentrations in µg/l.

Contaminant	Groundwater	AWQC	
		Acute	Chronic
ORGANIC COMPOUNDS			
<u>Volatile</u>			
acetone	440,000	N/D	N/D
chloroform	2,200	N/D	N/D
trichloroethylene	680	2,000*	N/D
1,2-dichloropropane	3,700	10,300*	3,040*
<u>Pesticides</u>			
2,4-D	123,370	N/D	N/D
2,4,5-T	5,390	N/D	N/D
Silvex	720	N/D	N/D
Dicamba	6,730	N/D	N/D
Dichlorprop	3,125	N/D	N/D
INORGANIC SUBSTANCES			
<u>Trace Metals</u>			
arsenic	92	69	36
chromium	520	1100	50
lead	190	140	5.6
mercury	3.7	2.1	0.025
* LOEL; N/D: Not determined			

NOAA Trust Habitats and Species in Site Vicinity

NOAA trust resources use the delta region of the San Joaquin and Sacramento rivers, and Suisun Bay (Table 2). The delta of the two rivers forms a tidal, estuarine habitat with salinity ranging from 0.5 to 5 ppt (USFWS 1981). Near the site, the San Joaquin River is 0.8 to 5 km wide, 4.5 to 9 meters deep, and has a silty sand substrate (Rugg 1988).

Suisun Bay is a transition zone between the saltwater ecosystem of San Francisco Bay and the freshwater ecosystems of the San Joaquin and Sacramento rivers. The tidal areas of Suisun Bay wetlands are characterized by cattails (*Typha augustifolia*) and other plants that tolerate frequent inundation by brackish water. Part of the Suisun Bay marsh was designated a California Wetland Preserve in 1984 (Lee et al. 1986).

Chinook salmon, steelhead trout, white sturgeon, and American shad spawn in the upper reaches and tributaries of the Sacramento and San Joaquin rivers, with the largest populations found in the Sacramento River. Striped bass is the only anadromous species that spawns in the river delta region, although all of the anadromous species use the river delta region as a nursery area. Suisun Bay is a migration corridor for these anadromous fish and is used by the same species as a nursery ground before migrating to coastal areas. Extensive recreational fishing of these anadromous species occurs in both the river delta region and Suisun Bay (USFWS 1981; Wolcott 1989).

Table 2. NOAA trust resource use of the San Joaquin and Sacramento river delta and Suisun Bay (USFWS 1981; Wolcott 1989).

Species	San Joaquin and Sacramento River Delta	Suisun Bay
American shad	M,R,N	M,N,R
chinook salmon	M,R,N	M,N,R
steelhead trout	M,R,N	M,N,R
striped bass	M,R,S,N	M,N,R
white sturgeon	M,R,N	M,N,R
M : migratory route; R : recreational fishing; S : spawning area; N : nursery area		

Response Category: State Enforcement Lead (California Department of Health Services) with the PRPs conducting the RI/FS work

Current Stage of Site Action: RI/FS Workplan is being finalized with final version expected to be released in June 1989

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