EXHIBIT 6-7
MATRIX OF POTENTIAL EXPOSURE ROUTES

Exposure Medium/ Exposure Route	Residential Population	Commercial/Industrial Population	Recreational Population
Ground Water			
Ingestion	L	A	--
Dermal Contact	L	A	--
Surface Water			
Ingestion	L	A	L,C
Dermal Contact	L	A	L,C
Sediment			
Incidental Ingestion	C	A	C
Dermal Contact	C	A	L,C
Air			
Inhalation of Vapor Phase Chemicals			
Indoors	L	A	--
Outdoors	L	A	L
Inhalation of Particulates			
Indoors	L	A	--
Outdoors	L	A	L
Soil/Dust			
Incidental Ingestion	L,C	A	L,C
Dermal Contact	L,C	A	L,C
Food			
Ingestion			
Fish and Shellfish	L	–	L
Meat and Game	L	–	L
Dairy	L,C	–	L
Eggs	L	–	L
Vegetables	L	–	L

L = lifetime exposure
C = exposure in children may be significantly greater than in adults
A = exposure to adults (highest exposure is likely to occur during occupational activities)

-- = Exposure of this population via this route is not likely to occur.

EXHIBIT 6-8

EXAMPLE OF TABLE FORMAT FOR SUMMARIZING COMPLETE EXPOSURE PATHWAYS AT A SITE

Potentially Exposed Population	Exposure Route, Medium and Exposure Point	Pathway Selected for Evaluation?	Reason for Selection or Exclusion
Current Land Use			
Residents	Ingestion of ground water from local wells down-gradient of the site	Yes	Residents use ground water from local wells as drinking water.
Residents	Inhalation of chemicals volatilized from ground water during home use	Yes	Some of the chemicals of potential concern in ground water are volatile, and ground water is used by local residents.
Industrial Workers	Direct contact with chemicals of potential concern in soil on the site	Yes	Contaminated soil is in an area potentially used by outside maintenance workers.
Future Land Use			
Residents	Direct contact with chemi-cals of potential concern in soil on the site	Yes	Area could be developed in the future as a residential area.
Residents	Ingestion of chemicals that have accumulated in fish located in onsite ponds	No	The potential for signifi-cant exposure via this pathway is low because none of the chemicals of potential concern accumulate extensively in fish.

EXHIBIT 6-9

GENERIC EQUATION FOR CALCULATING CHEMICAL INTAKES

$$I = C \times \frac{CR \times EFD}{BW} \times \frac{1}{AT}$$

Where:

I = intake; the amount of chemical at the exchange boundary (mg/kg body weight-day)

Chemical-related variable

C = chemical concentration; the average concentration contacted over the exposure period (e.g., mg/liter water)

Variables that describe the exposed population

CR = contact rate; the amount of contaminated medium contacted per unit tine or event (e.g., liters/day)

EFD = exposure frequency and duration; describes how long and how often exposure occurs. Often calculated using two terms (EF and ED):

EF = exposure frequency (days/year)

ED = exposure duration (years)

BW = body weight; the average body weight over the exposure period (kg)

Assessment-determined variable

AT = averaging time; period over which exposure is averaged (days)

EXHIBIT 6-10

EXAMPLE OF TABLE FORMAT FOR SUMMARIZING EXPOSURE CONCENTRATIONS

Populations/Pathways	Exposure Concentration	Comments
Current Residents		
Ingestion of ground water:		
Benzene	9 ug/L	Concentrations are the 95 percent upper confidence limit on the arithmetic average of measured concentrations in downgradient monitoring wells.
Chlordane	5.3 ug/L	
Cyanide	11 ug/L	
Direct contact with soil:		
Manganese	1200 mg/kg	Concentrations are the 95 percent upper confidence limit on the arithmetic average of measured concentrations in onsite surface soils.
Selenium	48 mg/kg	
Mercury	2 mg/kg	
Inhalation of dust:		
Manganese	1 mg/m^3	Concentrations are based on estimates of fugitive dust generation and dispersion to nearby homes. Concentration inputs for air model are 95 percent upper confidence limit on the arithmetic average of measured concentrations in onsite soil.
Selenium	0.04 mg/m^3	
Mercury	0.002 mg/m^3	