

File Liberty  
# 13005

**Draft - Risk Based Soil Remediation Goals - Draft  
Liberty Industrial Finishing Site**

Rec'd from EPA  
on 4/14/95

**Commercial/Industrial Future Use Scenario**

Scenario assumes adult worker is present on the site 250 days/year for 25 years. Worker is assumed to be exposed to soil contaminants through dermal contact, incidental ingestion, and inhalation of air-borne dusts derived from site soils. Worker is assumed to have dermal contact with soils 125 days/year. Incidental ingestion of soils/dusts and inhalation of airborne dusts derived from site soils is assumed to occur 250 days/year.

Remediation goals are based on a cumulative hazard index for cadmium and chromium of 1.0. Chromium VI is assumed make up approximately 15% of the total chromium present in on-site soils.

According to this scenario, cadmium at the maximum detected concentration on-site (925 PPM) presents a hazard quotient of 1.5 through dermal contact, and 0.5 through incidental ingestion, for a total hazard quotient of 2.

According to this scenario, chromium at the maximum detected concentration on-site (43,300 PPM) presents a hazard quotient of approximately 0.7 through incidental ingestion. The dermal hazard quotient cannot be determined due to a lack of dermal absorption data for chromium.

Cadmium and chromium are assumed to exert cumulative toxic effects on the kidney. The soil remediation goals are obtained through a back-calculation to determine concentrations in soils which would result in hazard quotients of 0.5 for cadmium and chromium (to achieve a total hazard index of 1.0).

The calculations are as follows:

**Cadmium:**  $925/4 = 231$  PPM - approximately 230 PPM

**Chromium:**  $43,300/1.4 = 30,900$  PPM - approximately 30,000 PPM

Note that there is considerable uncertainty in these numbers due to assumptions regarding magnitude and frequency of potential future exposures. This uncertainty has been addressed through the use of conservative exposure assumptions in the assessment.

OPTIONAL FORM 99 (7-90)

**FAX TRANSMITTAL**

# of pages **2**

To <b>VEL CARDONA</b>	From <b>CARLOS RAMOS</b>
Dept./Agency <b>NYS DEC</b>	Phone # <b>637-4276</b>
Fax # <b>518-457-3972</b>	Fax #

NSN 7540-01-317-7966

5099-101

GENERAL SERVICES ADMINISTRATION

## Draft - Risk Based Soil Remediation Goals - Draft Liberty Industrial Finishing Site

### Recreational Future Use Scenario

Scenario assumes child ages 1-6 is present on the site approximately 1/2 of the days/year, for 2 hours per visit. Child is assumed to be exposed to soil contaminants through dermal contact, incidental ingestion, and inhalation of air-borne dusts derived from site soils.

Remediation goals are based on a cumulative hazard index for cadmium and chromium of 1.0. Chromium VI is assumed make up approximately 15% of the total chromium present in on-site soils.

According to this scenario, cadmium at the maximum detected concentration on-site (925 PPM) presents a hazard quotient of 10 through dermal contact, and 6 through incidental ingestion, for a total hazard quotient of 16.

According to this scenario, chromium at the maximum detected concentration on-site (43,300 PPM) presents a hazard quotient of approximately 10 through incidental ingestion. The dermal hazard quotient cannot be determined due to a lack of dermal absorption data for chromium.

Cadmium and chromium are assumed to exert cumulative toxic effects on the kidney. The soil remediation goals are obtained through a back-calculation to determine concentrations in soils which would result in hazard quotients of 0.5 for cadmium and chromium (to achieve a total hazard index of 1.0).

The calculations are as follows:

**Cadmium:**  $925/32 = 29 \text{ PPM} - \text{approximately } 30 \text{ PPM}$

**Chromium:**  $43,300/20 = 2165 \text{ PPM} - \text{approximately } 2150 \text{ PPM}$

Note that there is considerable uncertainty in these numbers due to assumptions regarding magnitude and frequency of potential future exposures. This uncertainty has been addressed through the use of conservative exposure assumptions in the assessment