Health Consultation

PUBLIC HEALTH IMPLICATIONS OF ENVIRONMENTAL SOIL, SURFACE WATER, AND SEDIMENT SAMPLING AT THE COPPOLA METALS SITE

NEW HAVEN, NEW HAVEN COUNTY, CONNECTICUT

MARCH 31, 2000

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

An ATSDR health consultation is a verbal or written response from ATSDR to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

You May Contact ATSDR TOLL FREE at
1-888-42ATSDR
or
Visit our Home Page at: http://atsdr1.atsdr.cdc.gov:8080/

HEALTH CONSULTATION

PUBLIC HEALTH IMPLICATIONS OF ENVIRONMENTAL SOIL, SURFACE WATER, AND SEDIMENT SAMPLING AT THE COPPOLA METALS SITE

NEW HAVEN, NEW HAVEN COUNTY, CONNECTICUT

Prepared by:

Connecticut Department of Public Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

The conclusions and recommendations in this Health Consultation are based on the data and information made available to the Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry. The Connecticut Department of Public Health and the Agency for Toxic Substances and Disease Registry will incorporate additional information if and when it becomes available. The incorporation of additional data could change the conclusions and recommendations listed in this document.

BACKGROUND AND STATEMENT OF ISSUES

The U.S. Environmental Protection Agency (EPA) requested that the Connecticut Department of Public Health (CT DPH) and the Agency for Toxic Substances and Disease Registry (ATSDR) examine the environmental data available for the Coppola Metals site in New Haven, CT. The purpose of this Health Consultation is to determine whether the contamination present on-site poses a public health hazard.

The Coppola Metals site is located at 201 Russell Street in New Haven, New Haven County, Connecticut [1]. The property is an abandoned scrap metal processing facility located on a 21 acre site, 3 acres of which are in East Haven. The remainder of the site is located in New Haven. The site is the former location of a brownstone quarry (ca 1800s). The property was acquired by the current owner in 1959. The metal recycling efforts extended from 1967 until 1989 [2]. The facility consists of a house (built in the 1920's) and a small building [1]. The recycled materials included: cabinets, capacitors, electrical motors, I-beams, pipes, steel plates, transformers, truck bodies, and wire [2,3]. Reportedly, most motor, cooling, and hydraulic oils were removed from parts before being delivered to the facility. Any remaining oils were emptied into above ground storage tanks, and then removed from the site. The electric motors and wire were burned to remove the insulation and recover the copper.

During the early 1970's, transformers were accepted for scrap metal recovery. These units were first drained of the oil; some of which were contaminated with polychlorinated biphenyls (PCBs). Some of the oil was drained directly onto the ground [1]. The scrap facility also accepted fill material from construction sites which included: asphalt, brick, concrete, sheet-rock, and stone [1].

The property is bordered on the north by Russell Street. An active Amtrak rail line borders the site to the east. Residential homes are located north and west of the site. There is a small stream located in the center of the property near the rail road tracts. The property is bordered on the south by an oil terminal [2]. There are fifteen wells located over half-mile from the site, to the southwest. These wells are not down gradient of the site. Therefore, the potential for these wells to be impacted from contamination on the Coppola site does not exist.

History of CT DEP involvement

The Connecticut Department of Environmental Protection (CT DEP) conducted a site visit on June 6, 1988. During that visit, samples were collected from locations where transformer oil may have impacted the soil. The results indicate that PCBs were detected at a maximum concentration of 56 ppm [2]. Additional soil samples were obtained during October of 1989. On June 12, 1990, two 55-gallon drums of PCB waste were shipped off-site [2]. On December 3, 1992, the CT DEP

recommended that the site be added to the Inventory of Hazardous Waste Disposal Sites. In November of 1998, the CT DEP conducted additional analysis of soil samples for PCBs. The maximum PCB concentration from that soil sampling round was 146,400 ppm. During April to May of 1999, a locked gate with warning signs was installed. In addition, the CT DEP conducted an emergency removal of 775 tons of PCB-contaminated soil from the site. This excavation removed the most highly contaminated soil areas, but additional PCB-contaminated soil remains on-site. The excavation was subsequently backfilled with clean soil [2]. Prior to the removal, numerous buried capacitors and transformers were located throughout the site. There is a potential for asbestos contamination resulting from waste disposal of U.S. Gypsum. One CT DEP representative reported a PCB odor at the site entrance during the May 1999 emergency removal.

DISCUSSION

Physical Site Conditions

Two site visits were conducted by the Connecticut Department of Public Health (CT DPH) during June of 1999. (One site visit included a regional representative of ATSDR.) Representatives from the following agencies were present during the site visits: ATSDR regional representative, the EPA, CT DEP, New Haven and East Shore Health Districts. During these site visits the following observations were made.

Access to the entrance of the site was restricted by a locked chain linked gate. The remainder of the site has no fences and has no access restrictions. The CT DEP has placed hazardous waste warning signs along the perimeter of the property to warn trespassers of contamination. The area is heavily wooded. The road inside the site is covered with crushed rock, which was placed there by the emergency response team of CT DEP. A small diverted stream runs along the eastern site perimeter, where tadpoles and other aquatic life were observed. There was no evidence of a sheen on the surface water of the stream. There was no evidence of trespassers.

Additional observations were noted in a preliminary assessment [2]. The CT DEP lined and capped a 120-square foot area thought to be the location where burning of materials occurred, and may have resulted in the generation of dioxin contamination [2]. Twelve corroded, rusted cylinders were noted lying near the garage. One of these was labeled as propane, two had oxygen labels affixed to them, and nine were unlabeled [2]. Thirty-seven drums were located south of the garage. Ten were lying on their sides; empty and rusted. Nineteen drums were covered and assumed, though not confirmed, to be empty [2]. Eight of the drums were uncovered, positioned in an upright manner, and contained various parts (electrical plugs, nails, pipes, screws, and scrap metal) [2]. One underground storage tank was located near the uninhabited residence located on the property. Stressed vegetation was noted on the southern and south western portions of the site.

Likelihood of Exposure

Since the site is located in a heavily populated area, and adjacent to an active rail road line, there is the likelihood that trespassing activities have occurred in the past. Currently, the entrance locked gate including warning signs appears to be effective at alerting the public that this site is not to be

accessed. However, the CT DEP has observed the property owner allowing people onsite to remove salvageable materials–this activity could result in exposures to these persons who are allowed on-site.

Soil Contamination

Soil sampling was coordinated by the EPA, the CT DEP and the EPA contractor (Weston). Three sampling rounds occurred during 1999. During the initial phase of the site investigation, eighty-eight surficial (0-3 inches) samples were collected from May 20 through June 4, 1999. All samples were analyzed for polychlorinated biphenyls (PCBs), thirty-three samples were analyzed for metals, and one sample was analyzed for asbestos [2]. As a result of the PCB confirmatory analysis, three additional locations were identified by the laboratory as having additional chlorinated compounds present. The gas chromatograph/ mass spectrophotometer (GC/MS) tentatively identified the compounds as "either 2-phenyl-pentachlorophenol or tetrachlorodibenzofuran (TCDF) with many other tetrachloro, pentachloro, hexachloro, heptachloro, octachloro isomers." The sample with the highest concentration of these other compounds was sent for dioxin analysis at the beginning of July of 1999. As a result of data validation, the dioxin analyses (expressed as toxicity equivalence factor (TEF)) determined that the results should not be relied on and a decision to resample was made.

All three locations that the laboratory previously identified as having other compounds, were re-sampled on August 26, 1999. Surface soil samples (0-3 inches) were submitted for dioxin analysis on August 30, 1999. In addition to those locations, three other surface soil samples were submitted, including two from locations close to H+1100, the location identified as having the highest TEF. One of these samples was 25 feet north of H+1100 and the second was 25 feet to the south. The sixth surface soil sample collected was a five sample composite from the area in front of the north garage (across from the house). This sample location was selected because of the presence of stained soil, absence of vegetation, and the proximity to the scrap metal operations area. (The map in Appendix B provides the sampling point locations.)

Table 1 lists the dioxin concentration detected in surface soil. The dioxin results were presented as a toxicity equivalence factor (TEF). The TEF value represents a weighted concentration of all dioxin compounds. Each of the dioxin compounds is assigned a relative toxicity value relative to the most toxic dioxin congener (2,3,7,8-tetrachlorodibenzo-p-dioxin). The relative toxicity value is then multiplied by the actual concentration of each dioxin. All dioxin compounds are then added together, the result of which produces a toxicity weighted concentration.

The dioxin analysis indicated that there were two values exceeding the health comparison value. These values are 28.6 ppb and 1.21 ppb. The results indicate that the maximum dioxin appears to be an isolated event. There does not appear to be wide-spread dioxin contamination.

Table 1
TEF Dioxin Concentrations Detected in Surficial Soil from the Coppola Site in New Haven [1].

Sample ID	Depth	Maximum Concentration (ppb)*	Comparison ppb	Value Source
H-1100	0-3 inches	28.6	1	ACLVL
H-1100-25N	0-3 inches	0.734	1	ACLVL
H-1100-25S	0-3 inches	0.0408	1	ACLVL
M+1000A	0-3 inches	0.0162	1	ACLVL
OP+700-25A	0-3 inches	1.21	1	ACLVL
CP-1A	0-3 inches	0.104	1	ACLVL

ppb parts per billion
ACLVL ATSDR has established an action level for 2,3,7,8-TCDD or TCDD toxicity equivalents in soil of 1 ppb for residential soils
* Average =5.1 ppb

Four PCBs congeners were analyzed for in the surficial soils. The range of values for each of the four specific congeners selected for analysis are presented in Table 2 along with the health comparison values.

Table 2
Concentration Range of Polychlorinated Biphenyls (as represented by four congeners) Detected in Surficial Soil from the Coppola Site in New Haven [1].

Chemical	Concentration Range (ppm)	Comparison ppm	Value Source
Aroclor 1242	ND-111*	0.4	CREG
Aroclor 1248	ND-33	0.4	CREG
Aroclor 1254	ND-58	0.4	CREG
Aroclor 1260	ND-45	0.4	CREG

CREG Cancer Risk Evaluation Guideline (for total PCBs)
ND None detected
ppm parts per million
* This value is the highest for this Aroclor 1242 as well as for total Aroclors combined.

Tables 3 and 4 list the concentrations of lead and arsenic detected in the surface soils respectively.

Table 3
Concentrations of Lead in Surficial Soil (0-3 inches) from the Coppola Site in New Haven [1].

Sample ID	Concentration (ppm)*	Comparison ppm	Value Source
CP-06	1,000	400	EPA SSL
CP-07	160,000	400	EPA SSL
CP-1A	272	400	EPA SSL
H-1100	354	400	EPA SSL
H-1100-25N	315	400	EPA SSL
H-1100-25S	275	400	EPA SSL
M+1000A	77.7	400	EPA SSL
OP+700	3,500	400	EPA SSL
OP+700-25A	5,350	400	EPA SSL

EPA SSL EPA Soil Screening Level
ppm parts per million
* Average = 19,016 ppm

Table 4
Concentrations of Arsenic in Surficial Soil (0-3 inches) from the Coppola Site in New Haven [1].

Sample ID	Concentration (ppm)*	Comparison ppm	Value Source
CP-1A	39.0	0.5	CREG
H+1100A	3.9	0.5	CREG
H+1100A-25N	2.9	0.5	CREG
H+1100A-25S	2.3	0.5	CREG
M+1000A	4.9	0.5	CREG
OP+700-25A	6.3	0.5	CREG

CREG Cancer Risk Evaluation Guideline
ppm parts per million
* Average = 9.9 ppm

Surface Water and Sediment Analyses

Five surface water samples were collected on May 12, 1999, and analyzed for PCBs. These samples included off-site locations to determine whether site-related contamination was migrating from the site. The following PCB congeners were analyzed for: Aroclor 1016, Aroclor 1221, Aroclor 1232, Aroclor 1242, Aroclor 1248, Aroclor 1254, and Aroclor 1260. No PCBs were detected in any surface water sample above the detection limit (1 ppm).

In addition to the five surface water samples, two rounds of sediment samples were conducted. The first round consisted of five samples collected on May 12, 1999, and included off-site locations. The

samples were analyzed for the same PCB congeners as the surface water. All confirmed results were below the detection limit of 1 ppm. However, one preliminary sample result indicated a PCB congener (Aroclor 1248) was detected at 18.9 ppm. This result is likely to have been a laboratory error, as three additional samples obtained from the same location were all below the 1 ppm detection limit.

The second sediment sampling round also consisted of five samples, and was restricted to the on-site brook. The samples were collected on June 2, 1999, and were analyzed for the same PCB congeners. The results ranged from none detect to a maximum of 0.7927 ppm.

Exposure Assessment - Child and Adult

The contamination present on this site is in surface soil contained within a partially fenced area. The nearest residence is 500 yards from the site. In order to assess the public health risks posed by exposure to surface soil at this site, the CT DPH developed several exposure assumptions. These include such factors as frequency of site access, soil ingestion rates, dermal exposure factors, and duration of exposure. Since this site is in a heavily populated area, and is located next to a rail line, the likelihood exists for ingestion and dermal exposures to contaminated soils for persons who trespass on the Coppola Metals Site. The site does not appear to be accessible to young children, and that exposure scenario was not considered likely. The exposure pathways that were examined include the incidental adult and older children's (12-18 years) ingestion of contaminated soil (200 mg/day), and the dermal absorption of contaminants from soil adhering to the skin. The exposure duration used for contaminated soil was assumed to be a trespasser accessing the site during the summer months up to ten years.

Public Health Implications - Child and Adult

To evaluate health effects, the ATSDR has developed a Minimal Risk Level (MRL) for contaminants commonly detected at hazardous waste sites. The MRL is an estimate of daily human exposure to a contaminant below which non-cancer, adverse health effects are unlikely to occur. An exposure above an MRL does not indicate that an adverse health effect is likely to occur. Rather, an exceedance is used as an indication that additional review for that chemical is required. MRLs are developed for each route of exposure such as ingestion, inhalation, and dermal absorption and for the length of exposure, such as acute (less than 15 days), intermediate (15 to 364 days), and chronic (greater than 364 days). This evaluation included an assumption of both a short-term and chronic trespasser scenario.

The amount of these contaminants ingested per body weight was calculated for an adult, and the older child. Both values include a component known as dermal absorption. The dermal absorption component was incorporated into the exposure scenario, because access to the site may occur, and the possibility exists for children to play in the contaminated soil, and the chemicals can be absorbed through the skin.

Dioxin:

Non-cancerous Effects

Exposure calculations used the maximum measured concentration of dioxin (as reported as TEF) in surface soil. There is insufficient information to determine whether the maximum is representative of the dioxin contamination on-site. Commonly, the maximum value is used for an acute exposure assessment scenario. Therefore, this toxicological evaluations utilized the maximum dioxin concentration of 28.6 ppb. The exposure dose was calculated for adults (4.5×10^{-8} mg/kg/day), and for children (4.1×10^{-7} mg/kg/day). Although the child dose did exceeded the acute MRL (2×10^{-7} mg/kg/day), a review of the scientific basis for acute effects was assessed, and the child exposure dose is ten fold below the level in animals that resulted in no adverse effects. Therefore, acute non-carcinogenic health effects in children is unlikely. Both adult and child exposure doses did exceed the intermediate and chronic MRLs (2×10^{-8} mg/kg/day and 1×10^{-9} mg/kg/day respectively). An additional review of the scientific basis for these MRLs were assessed, and non-carcinogenic health risks are also classified as unlikely.

Carcinogenicity Classification

The most potent dioxin, 2,3,7,8-tetrachlorodibenzo-p-dioxin, has been classified by the National Toxicology Program as reasonably anticipated to be a human carcinogen (group 2). Because of this classification, the theoretical cancer risk estimations were calculated for adults and children trespassing on this site.

Carcinogenicity Assessment - Based on Average (5.1 ppb) Dioxin Concentration

Carcinogenic toxicological evaluations frequently use a statistical upper bound approximation of the central tendency concentration in surface soil. This exposure concentration is known as the upper 95th percent confidence limit (95 UCL) of the arithmetric mean [5], a value that takes into account the variability in the data to ensure that the average exposure is not underestimated. However, the number of surface samples was insufficient to determine the 95 UCL of the data. The 95 UCL requires many samples (>30) to calculate a stable and reliable value. The determination of the average is not dependant upon sample numbers. The cancer assessment was conducted using the average dioxin concentration. Cancer estimates calculated using the average dioxin concentration is estimated to be 7 excess cancers per 1,000,000 adults exposed (7×10^{-6}). The cancer estimation for children is 1 excess cancers per 100,000 children exposed (1×10^{-5}).

Toxicological Implications

The cancer estimation values are above the de minimus level of 1 excess cancer in 1,000,000 people exposed (1×10^{-6}). The cancer estimations for children were also above EPA's acceptable risk range for Superfund sites 1 in 10,000 (up to 1×10^{-4}). However, these lifetime cancer risks were based on worst case scenarios. These cancer risks are theoretical estimates used to assess the hazards posed by various hazardous substances remaining in media (in this case surficial soil). The likelihood of any individual trespasser becoming ill is remote. This is due to the conservative (worst case approach) nature of the exposure assumptions. Various numeric values that are used during the determination of cancer risk assessments include values that are standard assumptions used at most hazardous waste sites with public access. The probability of each assumption actually being true in this case is unlikely. Although the procedures and calculations may represent unrealistic conditions, the results are useful in

determining the potential for exposure and relative magnitude of possible adverse health outcomes that may result if all worst case assumptions occur. Moreover, since potential future exposures are unknown, and may include the worst case assumptions, this technique provides important support for site mitigation (cleanup).

Description

Chlorinated dibenzo-p-dioxins (CDDs) are a class of 75 different compounds often designated as polychlorinated dioxins. The compound, 2,3,7,8-tetrachlorodibenzo-p-dioxin, is one of the most toxic CDD. Burning of many materials that contain chlorine, such as plastics, wood treated with pentachlorophenol, pesticide-treated wastes, other polychlorinated chemicals (such as polychlorinated biphenyls or PCBs), and even bleached paper can produce CDDs [3].

Arsenic:

Non-cancerous Effects

The average concentration of arsenic in surface soil is 9.9 ppm. Using this value, the exposure dose was calculated for adults (1.6×10^{-5} mg/kg/day), and for children (1.4×10^{-4} mg/kg/day). Although there is no acute or intermediate MRL, neither value exceeds the chronic MRL (3×10^{-4} mg/kg/day). Therefore the non-carcinogenic risks of adults or children exposed to arsenic in the surface soil at this site is unlikely.

Carcinogenicity Classification

Arsenic has been classified by the EPA as a known human carcinogen (Group A). Because of this classification, the cancer risk estimations were calculated for adults and children trespassing at this site.

Carcinogenicity Assessment - Based on average (9.9 ppm) arsenic Concentration

Cancer estimates calculated using the average arsenic concentration is estimated to be 3 excess cancers per 100,000,000 adults exposed (3×10^{-8}). The cancer estimation for children is 3 excess cancers per 10,000,000 children exposed (3×10^{-7}).

Brief description

Arsenic is a naturally-occurring element. Pure arsenic is a gray metal-like material which is usually found in the environment combined with other elements such as oxygen, chlorine, and sulfur. Arsenic combined with these elements is called inorganic arsenic [7]. Arsenic is found in the earth's crust at an average level of 2 ppm [7]. Most natural soils contain low levels of arsenic, but industrial wastes and pesticide applications may increase concentrations. Background arsenic concentrations in soil range from about 1 to 40 ppm, with a mean value of about 5 ppm [7].

Lead:

Non-cancerous Effect

Lead was detected at a average concentration in the surface soils at 19,016 ppm. Using this value, the exposure dose was calculated for adults (2.8×10^{-2} mg/kg/day), and for children (2.6×10^{-1} mg/kg/day). There are no MRLs for lead. However, since the soil concentrations exceeded the comparison value of 400 ppm, an assessment of the health risks posed by the maximum lead concentration was conducted. An examination of acute exposures in humans was investigated in the scientific literature. These doses are at a level that could result in adverse health effects. Lead is known to harm the nervous system and may result in decreased intelligence scores, attention deficits, slowed growth and hearing problems among children. Exposure to high levels of lead can cause the brain and kidneys of adults and children to be badly damaged. Lead exposure in adults can cause behavior changes, decreased motor skills, and impaired concentration. Lead exposure may increase blood pressure in middle-aged men and may affect sperm or damage other parts of the male reproductive system [6].

Carcinogenicity Classification

Although lead has been classified by the EPA as a probable human carcinogen (EPA group B2), there is insufficient information to conduct any cancer assessment for this compound.

Toxicological Implications

The locations where the highest lead concentration was obtained appears to have been in an area that is not easily accessible. Under realistic exposure conditions, the likelihood of anyone becoming ill due to contact with the highest lead contamination area is low.

Brief Description of Chemical

Lead is a naturally occurring bluish-gray metal found in small amounts in the earth's crust. It has no characteristic taste or smell. Metallic lead does not dissolve in water and does not burn. Some natural and man-made substances contain lead, but do not look like lead in its metallic form [5]. The lead content of soil derived from crustal rock, ranges from less than 10 to 30 ppm. The concentration of lead soil varies widely due to man-made sources. Elevated soil lead concentrations have been detected in larger urban areas. Some concentrations exceeded 300 ppm lead [5].

Polychlorinated Biphenyls:

Non-cancerous Effects

Using the highest PCB concentration detected (111 ppm) the exposure doses were calculated for adults (1.9×10^{-4} mg/kg/day), and for children (1.7×10^{-3} mg/kg/day). There are no acute or intermediate MRLs for PCBs, however, a review of the no observed adverse effect levels in animals was conducted. On the basis of the scientific evidence, acute and intermediate non-cancerous affects are considered unlikely.

The chronic MRL for Aroclor 1254 (the only congener of PCB that has an MRL) is 2×10^{-5} mg/kg/day. Although this value was exceeded for adults and children, non-cancerous health effects are unlikely. This conclusion was based on an assessment of the scientific foundation for this value. For the purpose of placing the MRL in context, it should be mentioned that the

MRL value is approximately 1,000 times the low-end estimated dose (0.07 mg/kg/day) for occupationally exposed individuals [4]. The CT DPH concludes that non-cancerous health effects are unlikely for either adults or children who contact the contaminated surficial soil.

Carcinogenicity Classification
PCBs have been classified by the EPA as a probable human carcinogen (EPA group B2). Because of this classification, the cancer risk estimations were calculated for adults and children trespassing at this site.

Carcinogenicity Assessment - Based on 95 UCL (7.5 ppm) PCB Concentration
There were sufficient PCB analytic results to calculate the 95 UCL for this data set. A decision was made during the calculation of the 95 UCL to represent samples reported as ND (none detected) as 0.1 ppm. The resultant 95 UCL yielded a value of 7.5 ppm. Cancer estimates calculated using the average PCB concentration is estimated to be 3 excess cancers per 10,000,000 adults exposed (3×10^{-7}). The cancer estimation for children is 2.7 excess cancers per 1,000,000 children exposed (2.7×10^{-6}). The likelihood of any individual trespasser becoming ill is remote.

Description
PCBs area group of synthetic organic chemicals that contain 209 individual chlorinated biphenyl compounds (known as congeners) with varying harmful effects. PCBs are either oily liquids or solids and are colorless to light yellow in color. They have no known smell or taste. PCBs enter the environment as mixtures containing a variety of individual components and impurities. Because they don't burn easily and are good insulating materials, PCBs have been used widely as coolants. and lubricants in transformers, capacitors, and other electrical equipment [4].

CONCLUSIONS

The surface soil is contaminated, in various locations on-site, with lead, dioxin (as reported as TEF) and PCBs at concentrations representing a Public Health Hazard to trespassers who may be exposed. Other contaminants, including arsenic, were detected at levels below a level of concern. Although the likelihood of anyone becoming ill as a result of exposure to the contaminated soil is low, these contaminants represent an avoidable source of carcinogens and lead.

Currently the entrance is restricted by a locked gate, and warning signs are posted. That effort appears to be effective in alerting the public that this site should be avoided, and not accessed. However, the CT DEP has observed the property owner allowing people onsite to remove salvageable materials--this activity could expose these persons to site-related contaminants.

Numerous drums, tanks, and other debris located throughout the site represent a physical hazard to trespassers who access the site.

The surface water and sediment sampling indicates that the site-related contamination is not migrating away from the site.

RECOMMENDATIONS

1. Restrict site access to the contaminated surface soils to prevent exposure to lead, dioxin, and PCBs.

2. Restrict site access to the storage drums, tanks, and other debris located throughout the site.

3. All future users of the site should be made aware of site conditions and contamination.

Public Health Action Plan

1. The CT Department of Public Health will review any additional data once it becomes available.

2. If requested, the CT Department of Public Health will coordinate with the CT Department of Environmental Protection and EPA regarding subsequent sampling events, and evaluate the public health implication of the results.

3. The CT Department of Public Health will develop a fact sheet, educate the public regarding the site hazards, and coordinate with the local health departments as needed.

4. The CT Department of Public Health will coordinate with the appropriate local health departments near the site to monitor changes in trespasser activity.

CERTIFICATION

The Health Consultation for the soil, surface water, and sediment sampling at the Coppola Metals Site was prepared by the Connecticut Department of Public Health under a cooperative agreement with the Agency for Toxic Substances and Disease Registry (ATSDR). It is in accordance with approved methodology and procedures existing at the time the health consultation was initiated.

Technical Project Officer, SPS, SSAB, DHAC

The Division of Health Assessment and Consultation(DHAC), ATSDR, has reviewed this Health Consultation and concurs with its findings.

Chief, SSAB, DHAC, ATSDR

Preparer of Health Consultation

Gary D. Perlman, MPH
Epidemiologist
Environmental Epidemiology and Occupational Health
Connecticut Department of Public Health

ATSDR Regional Representative:

William Sweet
ATSDR Region 1

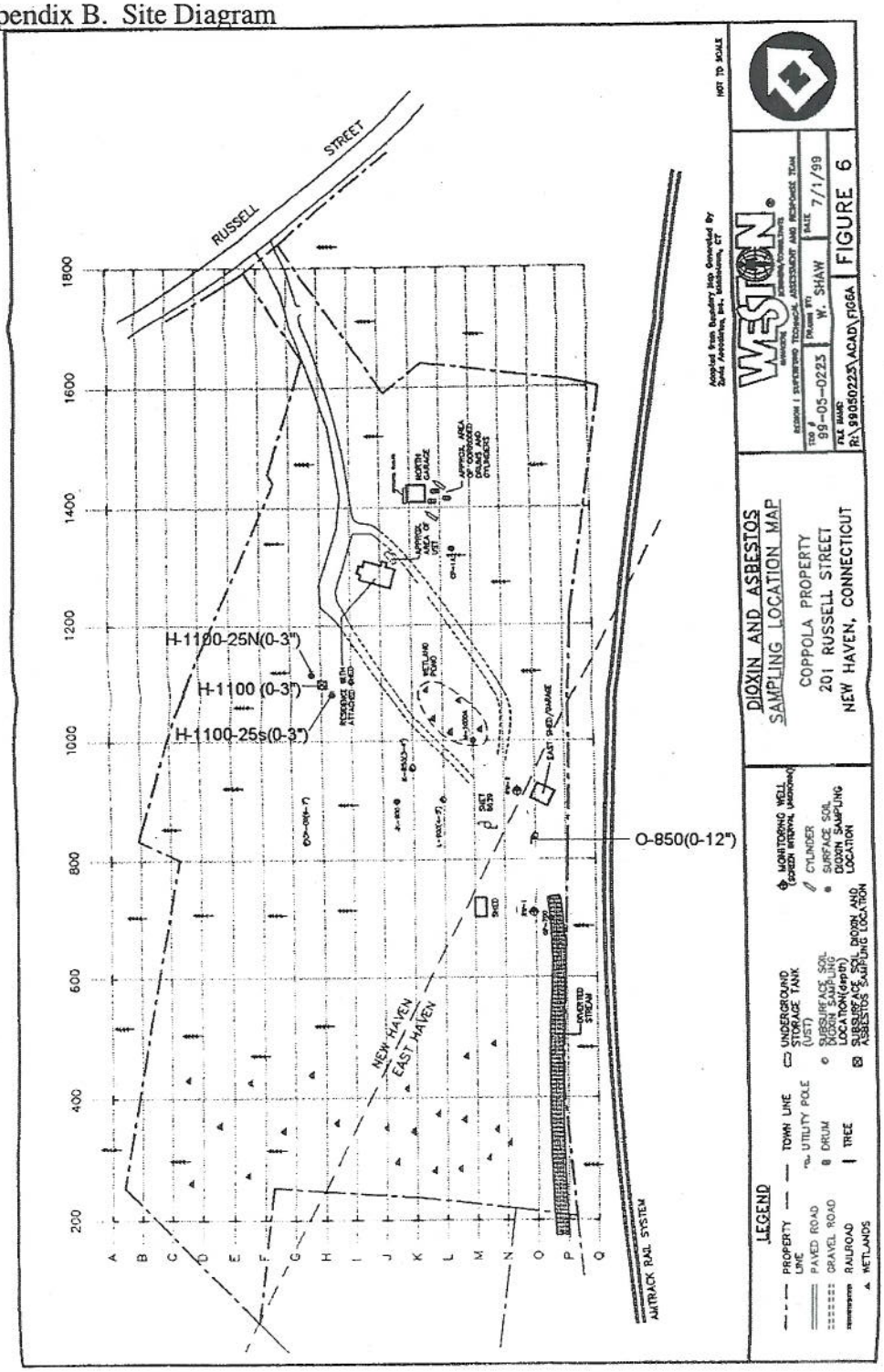
ATSDR Technical Project Officer:

Greg Ulirsch
Superfund Site Assessment Branch
Division of Health Assessment and Consultation
Agency for Toxic Substances and Disease Registry

Appendix A. List of Chemical Analyzed for in Soil.

2,2'-oxybis(1-chloropropane)	butyl benzyl phthalate	fluorene
2-methylnaphthalene	butylbenzylphthalate	heptachlor
2-methylphenol	cadmium	heptachlor epoxide
2-methylphenol 2-nitroaniline	calcium	hexachlorobenzene
2-nitroaniline	carbazole	hexachlorobutadiene
3-nitroaniline	chloronaphthalene,2-	hexachlorocyclopentadiene
4,6-dinitro-2-methylphenol	chlorophenol,2-	hexachloroethane
4-bromophenyl-phenylether	chlorophenyl phenyl ether,4-	indeno(1,2,3-cd)pyrene
4-chloro-3-methylphenol	chromium	iron
4-chloroaniline	chrysene	isophorone
4-methylphenol	cobalt	lead
4-nitroaniline	copper	magnesium
acenaphthene	DDD	manganese
acenaphthylene	DDE	mercury
aldrin	DDT	methoxychlor
aluminum	di-n-butyl phthalate	naphthalene
aniline	di-n-octyl phthalate	nickel
anthracene	dibenzo[a,h]anthracene	nitrobenzene
antimony	dibenzofuran	nitrophenol,2-
arsenic	dichlorobenzene,1,2-	nitrophenol,4-
barium	dichlorobenzene,1,3-	nitroso-n-propylamine,n-
benzo[a]anthracene	dichlorobenzene,1,4-	nitrosodiphenylamine,n-
benzo[a]pyrene	dichlorobenzidine,3,3'-	pentachlorophenol
benzo[b]fluoranthene	dichlorophenol,2,4-	phenanthrene
benzo[ghi]perylene	dieldrin	phenol
benzo[k]fluoranthene	diethyl phthalate	potassium
benzoic acid	dimethyl phthalate	pyrene
benzyl alcohol	dimethylphenol,2,4-	selenium
beryllium	dinitrophenol,2,4-	silver
BHC isomer (alpha)	dinitrotoluene,2,4-	sodium
BHC isomer (beta)	dinitrotoluene,2,6-	thallium
BHC isomer (delta)	diphenylhydrazine,1,2-	trichlorobenzene,1,2,4-
BHC isomer (gamma)	endosulfan 1	trichlorophenol,2,4,5-
bis(2-chloroethoxy)methane	endosulfan 11	trichlorophenol,2,4,6-
bis(2-chloroethyl)ether	endosulfan sulfate	vanadium
bis(2-chloroisopropyl)ether	endrin	zinc
bis(2-ethylhexyl)phthalate	endrin ketone	
bromophenyl phenyl ether,4-	fluoranthene	

Appendix B. Site Diagram



References

1. HRP Associates Incorporated. Site Assessment for Coppola Metals 201 Russell Street New Haven, Connecticut. HRP #SA-COP-Ø. March 25, 1988.

2. Roy F. Weston, Inc. Removal Program Preliminary Assessment/Site Investigation for the Coppola Property New Haven, Connecticut 20 May through 4 June 1999 and 26 August 1999. January 2000.

3. Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Chlorinated Dibenzo-p-Dioxins", December 1998.

4. Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Polychlorinated Biphenyls", September 1997.

5. U.S. Environmental Protection Agency, Risk Assessment Guidance for Superfund, Supplemental Guidance: Calculating the Concentration Term. May, 1992.

6. Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Lead", April 1993.

7. Agency for Toxic Substances and Disease Registry, "Toxicological Profile for Arsenic", April 1993.