

**Health Consultation**

**Public Health Implications of  
Environmental Sampling and Physical site Conditions  
at the  
Charles Batchelder Company Incorporated Site  
Fairfield County  
Newtown, Connecticut**

**CERCLIS Number: CTD 01182278**

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**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**

On February 6, 1997, the U.S. Environmental Protection Agency (EPA) requested that [1] the Agency for Toxic Substances and Disease Registry (ATSDR) examine the environmental data available for the Charles Batchelder site in Newtown, CT. The purpose of this Health Consultation is to determine whether contamination present on-site (soil, storage drums, and debris) pose a public health hazard and/or a physical hazard.

The Charles Batchelder Company Site is located at 40 Swamp Road in the Botsford section of Newtown, Fairfield County, Connecticut [2,5]. The property is an abandoned aluminum smelting facility located on a 30.65 acre site. The facility consists of two buildings [2,5]. Smelting operations were conducted from 1947 to 1987. Scrap metals which entered the smelting operations included: transformers, painted venetian blinds, automobile parts, edge cuttings, containers and various other items [3]. Aluminum is separated from the various metals entering the smelter. During the smelting process, aluminum enters a molten phase. The top stratum contains a material known as dross or slag. This material contains cadmium, lead, tin, chromium, copper, zinc, nickel, and iron [3]. These metals, which were reportedly used as inputs to the smelter, included such as lead paint on venetian blinds, etc.

The property is bordered on the west by Swamp Road. On the northern section, the site is bordered by an active rail road tract and Newtown Lumber. The eastern and southern sections are bordered by wetlands (Pine Swamp). There are undeveloped properties in the wetlands areas. Water supply wells for residential properties are located within 500 feet of the western boundary adjacent to Swamp Road [5].

Throughout the site are mounds of baghouse fines. These consist of fine particles precipitated from the smelter furnace. Cooling waste water containing heavy metals including arsenic was disposed of in a lagoon. This disposal method was conducted until 1983.

An oil tank farm on-site consisted of eighteen tanks. The combined capacity was 270,000 gallons of waste oil. The waste oil was burned as fuel in the smelting process [3]. In 1993, the main portion of these tanks were removed. The dirt under the tanks was saturated with oil from previous spills [3], and was not removed. Contamination on-site also includes PCB from waste oil and possibly cyanide [3].

In 1975, Newtown landfill workers complained of illnesses after handling the baghouse fines disposed of at the Newtown landfill [9]. On June 28, 1979, private citizens, government and health officials in the Newtown telephoned the Connecticut Department of Environmental Protection (CT DEP) to complain of severe skin irritations, choking sensations, bronchial, and respiratory irritation and sore throats [10]. The cause was reported to be the active Batchelder Aluminum Smelter [10]. In 1983 the cooling water ran across the paved parking lot into the wetland area. In 1984, one worker was fatally injured in a furnace explosion. This explosion also damaged the structural integrity of the building [3].

In 1995, the Newtown District Department of Health notified the CT DEP commissioner of dust clouds possibly containing dross pile material observed on-site and in the neighborhood. In addition, the District Department of Health was notified of adolescents reporting illness who have been on the site. This report occurred during the summer of 1996, and the illnesses were not detailed, but the affected individuals were advised to consult with their physicians [8].

In June and July of 1993, scrap metal removal operations were conducted. During this activity, large sections of the fence on the north and east of the property were removed [5]. The fence has not been repaired.

Site access is currently entirely uncontrolled [5]. There is ample evidence of regular trespassing (dirt bike tracks, graffiti, and beer bottles, etc.) [6,7].

## DISCUSSION

### Physical Site Conditions

Two site visits were conducted by the Connecticut Department of Public Health (CT DPH) during October of 1996 and February of 1997 [6,7]. In addition, Weston conducted a site visit during August of 1996 [2]. During these site visits the following observations were made.

- Numerous drums were observed both inside the two buildings and throughout the property. Many drums were overturned and some appeared to contain material. There were three 20,000 gallon capacity above ground storage tanks in the former tank farm. The soil around the tanks was heavily stained with what appeared to be oil. Several large piles of baghouse dust and dross slag were observed throughout the property, including inside the two buildings.
- Many piles of debris, abandoned vehicles and machinery were observed throughout the site.
- Vandalism of office equipment was noted in the abandoned office.
- Bicycle tracks were noted on one of the piles of baghouse fines.
- Two piles of discarded toys were observed near one pile of lead contaminated slag pile.
- Along the southwest portion of the property is a former landfill area containing baghouse dust and dross slag. The liner and soil cap have been breached in several locations.
- Many of the baghouse dust and dross slag waste piles located along the eastern portion of the site had flowed through the fence and completely covered sections of the fence.
- Several deep open pits, some filled with water were observed.
- Abandoned gasoline pump was located on-site.
- Various tanks and drums were noted throughout the site. These are described in the table below.

Table 1.

Storage container (Drum, Tank, etc.) identification collected by WESTON from the Charles Batchelder Site in Newtown.

Classification	Quantity	Status
1-cubic yard box	6	full or partially full
30-gallon drums	5	full or partially full *
50-pound bags	9	full
55-gallon drum	26	full or partially full *
55-gallon drum	18	empty
Above ground Storage Tanks Various Sizes	10	unknown *
Gas Cylinder	1	unknown
Propane Cylinders	31	unknown

\* The contaminants concentrations are listed on table 4.

Samples Collected

On August 29, 1996, Weston collected thirty-two samples. On December 18, 1996, a second round of sampling was conducted by Weston [11]. During this sampling, twenty-eight samples were collected. The sample type and matrix are presented in Table 2 below.

Table 2  
Samples collected by Weston from the Charles Batchelder Site in Newtown [2,11].

Sample type and Matrix	Number of samples collected on	
	August 29, 1996	December 18, 1996
Debris	0	1
Drum	2	0
Landfill	3	2
Manhole	1	0
Sediment	1	0
Soil Pile	4	2
Surface Soil	5	0
Tank	4	0
Waste Piles (includes dross and baghouse fines)	12	23

Tables 3, 4, and 5 highlight the maximum concentrations of contaminants detected above health comparison values from both sampling rounds (August and December of 1996). Table 3 lists the metals analysis, and Table 4 lists the VOCs. Table 5 lists the maximum PCB concentration detected in soil.

Table 3  
Maximum Metals Detected in Waste Piles collected by Weston from the Batchelder Site in Newtown [2,11].

Chemical	Maximum Concentration (ppm)	Comparison ppm	Value Source
antimony	100	20	RMEG-Child
beryllium	16.4	0.2	CREG
cadmium	90	40	EMEG-Child
chromium (unspecified III or VI)	1,160	300	RMEG-Child
lead	17,200	#	#
zinc	27,000	20,000	EMEG-Child

#	There are no soil health comparison values for lead. However, based on pharmacokinetic modeling using 200 mg soil ingestion, this concentration of lead in the waste pile could result in high blood lead levels.
CREG	Cancer Risk Evaluation Guideline
EMEG-Child	Environmental Media Evaluation Guideline for Children
ppm	parts per million
RMEG-Child	Reference Dose Media Evaluation Guideline for Children

Samples were collected from a depth of 0 to 3 inches. The highest concentrations were detected in the dross, slag and baghouse fines piles located throughout the site. All soil samples for VOCs were below a level of concern. The samples from the open tanks are listed below in Table 4. The maximum PCB concentration detected in soil, from the factory floor, was 19 ppm, the results are listed in Table 5. Off-site migration of site-related contamination is unknown.

Table 4  
Maximum Contaminant Concentrations Detected  
in Liquid Sampled From Storage Tanks  
collected by Weston from the  
Batchelder Site in Newtown [2].

Chemical	Concentration (ppb)
toluene	3,500
ethylbenzene	2,800
meta & para xylene	6,300
ortho xylene	8,400

ppb                      parts per billion

Table 5  
Maximum PCB Concentration Detected in Soil Collected by Weston  
from the Batchelder Site in Newtown [2].

Chemical	Concentration (ppm)	Comparison ppm	Value Source
PCB	19	0.06	CREG

ppm            parts per million  
CREG          Cancer Risk Evaluation Guideline

Private well sampling

On August 30, 1995, the CT DEP conducted domestic well sampling from seven private wells. All VOCs and metals detected in the private wells were below a level of concern (below safe water quality standards) [12].

Toxicological Evaluation

This site contains numerous piles of dross and baghouse fines. One pile contains lead at levels that represent a public health hazard to trespassers, especially young children who may incidentally ingest the soil during contact with the piles. Exposure to contaminants in the remaining piles does not represent a health hazard if exposure is limited to either ingestion or dermal contact. However trespassers that regularly gain access and travel with dirt bikes on the piles may experience an unacceptable health risk from the inhalation of metal dust. The CT DPH calculated the risks to these trespassers from inhalation of metal dust during a motorized bike riding episode. We assume that trespassers gained site access 30 days a year, ride for 3 hours on the site, and have been accessing the site for 8 years. The CT DPH utilized establish EPA methodology to calculate dust generated during the trespassing episodes [13]. On the basis of these assumptions, there is an acute health hazard from inhaling the metal dust. The metals which were at elevated levels include: chromium, cobalt, aluminum, and cadmium. Inhalation of metal dust may cause damage to the respiratory system. One outcome of exposure to powdered metal dust, reported in the literature, may be metal fume fever. This is an acute syndrome that follows exposure to metal fumes or very fine metal dust particles. The symptoms are characterized by symptoms similar to the flu: fever, chills, excess sweating, nausea, weakness, fatigue, and throat irritation [14]. Metal fume fever is often incorrectly identified as the flu. Metals associated with this syndrome include: aluminum, antimony, cadmium, copper, iron, magnesium, manganese, nickel, selenium, silver, tin, and zinc [14].

There have been two reports of youths experiencing flu-like symptoms after trespassing the site [8]. The CT DPH does not know or is unable to obtain the diagnosis of the reported illnesses, therefore metal fume fever can not be ruled out.

## **Conclusions**

1. The baghouse fine piles and dross piles located throughout the site represent a public health hazard to trespassers who regularly and easily access the site and ride motorized bicycles through the piles and inhale the metal fines.
2. Numerous drums, tanks, and other debris located throughout the Batchelder Site represent a physical hazard to trespassers who regularly and easily access the site.
3. One pile of dross material near the landfill contains lead at concentrations which present a health hazard to trespassers who may play on this pile. Incidental ingestion of this waste could result in blood lead poisoning.
4. The structural integrity of sections of the larger building has been damaged to such an extent that a building collapse is likely.
5. Two tanks, that are nearly one quarter full of liquid, have sections cut out on the ends, and present a physical hazard to trespassers.
6. The Batchelder Site contains numerous accessible storage drums (containing waste oil and fuel oil), that present a physical hazard to trespassers who may play on them.
7. The Batchelder Site contains one known asbestos source from abandoned tiles located outside of the main building. The current friable condition is unknown, and may be disturbed by trespassers.
8. The Batchelder Site contains soil contaminated with PCBs that present a potential health hazard to trespassers.
9. The security fence is damaged and in some sections non-existent.
10. One gasoline pump was noted near the main building. The underground storage tank is believed to be present, but the current gasoline storage is unknown. This may represent an explosion hazard to trespassers who may start a fire near the hose.
11. Numerous open pits are located inside the main building which present a physical hazard to trespassers.
12. The extent of off-site migration of site-related contamination is unknown.

## **Recommendations**

### *Short-term Recommendations*

1. Prevent access to all baghouse fine piles and all dross piles located throughout the site.
2. Secure the perimeter fence and include visible warnings posted around the site.
3. Prevent access to the above ground storage tanks which contain product and have large openings cut out on the ends.
4. Prevent access to the contaminated PCB soil.
5. Prevent access to the storage drums located throughout the site.
6. The CT DPH would like the opportunity to review the health and safety plan during remediation.
7. Educate the community about the site hazards.

### *Long-term Recommendations*

1. Determine if there are any underground gasoline storage tanks, and if present, conduct VOC and SVOC analysis of the product.
2. Continue monitoring private wells adjacent to the Batchelder site for VOCs, metals, and SVOCs.
3. Determine if site-related contamination has migrated off-site: either via dust clouds or other transport mechanism.



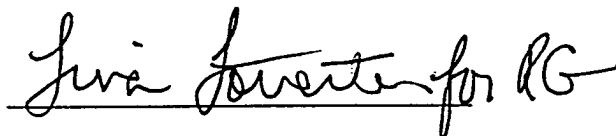
## CERTIFICATION

The Charles Batchelder Company Incorporated Site Health Consultation 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, ATSDR, has reviewed this Health Consultation and concurs with its findings.



Chief, SPS, SSAB, DHAC, ATSDR

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