Health Consultation

Review of Indoor Air Monitoring Plan

TORRINGTON COMPANY

WATERBURY, NEW HAVEN COUNTY, CONNECTICUT

MAY 13, 1998

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.

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HEALTH CONSULTATION

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TORRINGTON COMPANY

WATERBURY, NEW HAVEN COUNTY, CONNECTICUT

Prepared by:

Connecticut Department of Health
Under a 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 when received. The incorporation of any additional data could change the conclusions and recommendations listed in this document.

BACKGROUND AND STATEMENT OF ISSUES

On February 9, 1998, the Connecticut Department of Environmental Protection (CT DEP) requested the review of an indoor air monitoring plan submitted on behalf of the Torrington Company located at 122 Avenue of Industry, Waterbury, CT. This plan was submitted under section 3(c)(5)(B)(i) of the Connecticut Remediation Standard Regulations. These regulations stipulate that ground water polluted with a volatile organic substance below a building shall be remediated such that the concentration of each substance is equal to or less than the applicable volatilization criterion for ground water. An exemption from the volatilization criterion can be granted if an approved indoor air monitoring program and measures to control the level of volatile organic compounds are implemented.

The site was formerly used for the manufacture of automotive parts and surgical staplers and other items by the Torrington Company and a tenant, Sequel. The site is currently occupied by the Easter Seals Rehabilitation and is used for assembly and packaging. Volatile organic compounds have been identified in the groundwater. 1,1 Dichloroethene (1,1-DCE) has been identified at concentrations that exceed the residential and industrial/commercial volatilization criteria of 2 and 6 parts per billion (ppb), respectively, specified in the CT DEP Remediation Standard Regulations. While 1,1-DCE has been identified in four distinct plumes on the site, only one of the plumes is located in the vicinity of the building and likely extends beneath the building. Depth to ground water is reported in the three and four foot range.

DISCUSSION

The proposed sampling plan provides no details regarding the size and square footage of the building. No floor plans for the building were submitted. While the plan does indicate that sampling will occur in seven locations, it is difficult to determine if these locations are appropriate and representative. Floor plans should include the demarcation of potential conduits for soil gas infiltration including pipes, drains and cracks. The sampling proposed may not be representative, if future building use includes structural and/or use changes to the building and it's interior.

The plan calls for sampling on Sunday, during four consecutive quarters to account for

seasonal variation and to capture "conservative 'worst case'" concentrations. It is not at all clear that these quarterly monitoring events will be representative or worst case. There is no discussion regarding collecting meteorological data during air sampling events. Temperature, precipitation, wind and barometric pressure will influence the infiltration of soil gas into the building. These factors may enhance or decrease soil gas infiltration. Data should be collected on temperature, precipitation, wind and barometric pressure and taken into consideration when interpreting indoor air data.

There is no discussion of the air handling, heating and cooling systems within the building and the conditions that will exist during sampling. The operation of the heating system will affect pressure within the building , likely enhancing the amount of soil gas drawn up into the building. It is important to understand this interaction prior to sampling to ensure that a "worst case" scenario is occurring. It is important that the building's heating system be fully activated to normal workplace temperatures during at least some of the testing. Further, indoor/outdoor temperature differences need to be recorded.

A cursory review of the air sampling data indicates that air sampling methods and analysis were not capable of achieving detection limits sufficient to quantify the contaminants at concentrations of interest. For 1,1 DCE, a 10E-6 cancer risk for an industrial/commercial scenario corresponds with a concentration in air of $0.08\mu g/m^3$. It appears in the sampling event reports that detection limits were significantly greater than this target value. In addition, the actual indoor air sampling conducted so far used a sample collection protocol different from that outlined in the plan. Specifically, the plan calls for collection at a flow rate of .01-.05 liters per minute until a volume of 5-10 liters is collected corresponding with a sampling duration of 100-1000 minutes. The September 1997 sampling event reports flow rates of 66-72 cc/min. with flow periods ranging from 28-30 minutes. Collection periods that are more representative of a work day would be more appropriate.

Indoor air sampling identified several volatile organics that have not been identified in ground water. There maybe sources of volatile organics within the building. These need to be described and characterized. Further, these results showed that the maximum concentrations found thus far did not necessarily correspond to the ground water plume and were not at the same locations in the two sampling rounds. Thus, it is unclear whether the actual maximum has been detected. Additional sampling locations may be advisable to improve confidence in the indoor air results. It should be noted that indoor air testing under conservative current use conditions will not necessarily be representative of future uses and conditions at the building. Therefore, soil gas monitoring is an important part of the evaluation.

According to the HRP Report on Additional Ground Water Quality Evaluation dated January 21, 1998, none of the soil gas samples contained detectable volatile organic compounds. However, no detection limits were reported, so it is impossible to determine whether the method was sensitive enough to be useful. Other uncertainties include

whether the locations and soil depth chosen for sampling have the potential to capture worst case. For slab on grade construction, it may be possible to drive soil gas probes diagonally under the building to get a better indication of what may be present beneath the building. Simultaneous soil gas and indoor air sampling should be conducted. While depth to ground water is reported to be in the 4 foot range, it would be useful to know what the seasonal fluctuations are. The soil gas survey was conducted in August and samples were extracted from a depth of two feet; the depth to ground water at the time of this sampling event is unknown. Additional information on soil types and heterogeneity should he reported to gain some understanding of soil conductivity and pathways for volatile organic compound transport. This information could prove useful in interpreting soil gas data. Future soil gas analysis should include analysis for vinyl chloride since this contaminant was detected in the December, 1997 indoor air sampling.

CONCLUSION

The indoor air monitoring plan as outlined is inadequate. It lacks information critical to the interpretation of results and the determination of a conservative, worst case scenario.

RECOMMENDATION

The indoor air monitoring plan should be revised to address specific deficiencies outlined in the Discussion section of this document.

REFERENCES

1. Indoor Air Monitoring Plan for Former Torrington Company Special Products Division, January 21, 1998 submitted by HRP Associates, Inc., Engineering & Geology.

2. Interoffice Memo To: Mary Lou Fleissner, CT Department of Public Health, From: Elsie Patton, Assistant Director, Permitting, Enforcement & Remediation Division, CT Department of Environmental Protection, Regarding Indoor Air Monitoring Plan, Torrington Company.

3. Report on Additional Ground Water Quality Evaluation, Former Torrington Company Special Products Division, 122 Avenue of Industry, Waterbury, CT, January 21, 1998 prepared by HRP Associates, Inc.

4. Report on Indoor Air Monitoring, September 1997 Sampling Event, Former Torrington Company, Special Products Division, 122 Avenue of Industry, Waterbury, CT February 11, 1998 prepared by HRP Associates, Inc.

5. Report on Indoor Air Monitoring, December 1997 Sampling Event, Former Torrington Company, Special Products Division, 122 Avenue of Industry, Waterbury, CT February 11, 1998 prepared by HRP Associates, Inc.

6. Agency for Toxic Substances and Disease Registry, Toxicological Profile for 1,1-Dichloroethene (Update) , May 1994.

CERTIFICATION

The Health Consultation for the Torrington Company 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

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