

## Action Memorandum Regarding Indoor Air – Raymark Industries Inc, Superfund Site

### ACTION MEMORANDUM

**DATE:** September 2, 2003

**SUBJ.:** Request for a Removal Action Regarding Indoor Air at the Raymark Industries, Inc. Superfund Site, Stratford, Connecticut.

**FROM:** Byron Mah, RPM  
Ron Jennings, RPM

**THRU:** Michael Jasinski, Chief  
NH/RI Superfund Section

**TO:** Susan Studlien, Acting Director  
Office of Site Remediation and Restoration

#### I. PURPOSE

The purpose of this Action Memorandum is to request and document approval of the proposed removal action described herein regarding indoor air at the Raymark Industries, Inc. Superfund Site, located in the Town of Stratford, Fairfield County, Connecticut (the "Site"). This action is a time-critical removal action pursuant to Section 104(a)(1) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, 42 U.S.C. § 9601 *et seq.*, and Section 300.415 of the National Contingency Plan (NCP), 40 C.F.R. § 300.415. The purpose of this proposed response action is to mitigate threats to human health posed by the presence of uncontrolled hazardous substances via vapor intrusion into residences within an area of interest (described below) from groundwater and soil gas at the Site.

#### II. SITE CONDITIONS AND BACKGROUND

**CERCLIS ID#** : CTD001186618  
**SITE ID#** : 01H3, Raymark OU2 Groundwater  
**CATEGORY** : Time-Critical Removal Action

##### A. SITE DESCRIPTION

###### 1. Physical Location and Site Characteristics

The proposed response action involves approximately 114 residential structures in a neighborhood located east of Ferry Boulevard in the Town of Stratford, Connecticut. The area of interest is identified on the attached Figure 1. EPA investigations have determined that there has been a release of hazardous substances into the environment from the former Raymark Industries, Inc. facility located at 75 East Main Street (the "Facility"). Ferry Boulevard is located approximately 500 feet to the southeast of the Facility and is separated from the Facility by Interstate Highway Route 95.

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### 2. Site History

From 1919 until September 1989, the former Raymark Industries, Inc. facility manufactured automotive and heavy brake friction components. Solid manufacturing wastes were routinely disposed of at the Facility by backfilling low lying areas to create additional space for Facility expansion. Liquid wastes containing volatile organic compounds (“VOCs”) were routinely placed into numerous on-site lagoons which discharged to groundwater and nearby surface waters. In addition, there were many solvent spills (including trichloroethylene) at the facility. As a result, the Facility became contaminated with asbestos, lead, copper, polychlorinated biphenyls (“PCBs”), and VOCs. This waste material was also provided free of charge to the public and was used as fill throughout Stratford.

In 1993, the federal Agency for Toxic Substances and Disease Registry (“ATSDR”) performed a health assessment which concluded that the waste material from Raymark could cause a health threat. EPA, in coordination with the Connecticut Department of Environmental Protection (CTDEP), performed a series of response actions from 1993 through 1996 at the Facility and at residential, commercial, and municipal properties throughout Stratford where the waste had been used as fill. EPA is continuing its investigation of groundwater, soil, and sediment contamination at the Site.

A large, primarily residential neighborhood is located between the former Raymark Facility and the Housatonic River. Groundwater predominately flows from the Facility toward the Housatonic River, directly underneath this residential neighborhood. The depth to groundwater underneath the homes is only about 10-12 feet below ground surface. Sampling to date reveals a continuing source of free-phase VOC contamination underneath the Facility. This VOC contamination includes, without limitation, trichloroethylene (“TCE”). Recent groundwater data and modeling suggests that the groundwater contamination is at steady state. That is to say, VOC concentrations in groundwater have remained nearly constant over the past 10 years and are unlikely to significantly increase or decrease, unless the source at the Facility is contained or removed. VOC’s may migrate from the groundwater upward through the soil, through building basements and foundations, and contaminate the air inside. As residences in this neighborhood are connected to public water, indoor vapor intrusion from contaminated groundwater/soil gas is the primary concern in these homes.

High concentrations of VOCs in groundwater, flowing underneath the residential area, and model predictions of indoor vapor intrusion led to investigations of indoor air and soil gas beginning in 2000 and continuing each successive year to the present.

- In April, 2000, EPA collected soil gas and indoor air samples from six structures in the area of interest. The levels were high enough to warrant further sampling.
- In 2001, after sampling soil gas and indoor air, EPA installed sub-slab ventilation systems in four of the eight structures sampled to address unacceptable indoor air risks attributed to exposure to 1,1-dichloroethylene (“DCE”), a Raymark contaminant. EPA took such

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action pursuant to an Action Memorandum dated June 25, 2001. (See Attachments.)

- In 2002, after another sampling round of 12 additional homes in the neighborhood, CTDEP installed similar systems in five more homes to address unacceptable indoor air risks attributed to exposure to TCE, a Raymark contaminant.
- In 2003, EPA conducted another round of soil gas and indoor air sampling. In January/February, 2003, EPA collected indoor air samples at the five homes that received sub-slab ventilation systems in 2002 to ensure system performance. In March/April, 2003, EPA also collected soil gas and indoor air samples from 11 additional homes within the area of interest. The results of this sampling are discussed below.

### 3. Removal Site Evaluation

The area of interest is located above a groundwater plume contaminated with VOCs from the Raymark Facility. EPA does not expect that the groundwater contamination will significantly change in the short-term, and groundwater is only about 10-12 feet below ground surface. Indoor air sampling to date indicates that concentrations of Raymark VOCs have exceeded human health protective levels in some homes. For TCE, a primary Raymark contaminant of concern, based upon the 2003 sampling, two residences exceeded an indoor air level of 0.4 ppb/v TCE. EPA has recently calculated that exposure to 0.4 ppb/v TCE represents a  $10^{-4}$  excess cancer risk level, a level at which EPA usually takes action. See *Memorandum from Sarah Levinson*, EPA Human Health Risk Assessor, dated July 3, 2003. Additionally, each of the nine structures that had ventilation systems installed in 2001 and 2002 had indoor air TCE levels that exceeded the 0.4 ppb/v human health protective level prior to the installation of the systems.

Recent indoor air levels have also exceeded proposed state levels. In 2003, CTDEP proposed a Target Indoor Air Concentration for TCE of 0.19 ppb/v. A total of five homes out of the 11 tested in 2003 had concentrations of TCE in excess of CTDEP's proposed Target Indoor Air Concentration. In addition to indoor air exceedences, many locations in the area of interest exceed the proposed CTDEP volatilization criteria for groundwater and soil gas. Generally, under CTDEP's regulations this would mean that further monitoring or action is required.

After analyzing data from all the sampling events, the Connecticut Department of Public Health ("CTDPH"), with the concurrence of ATSDR, has recommended that subslab ventilation systems be considered for the five homes that exceeded CTDEP's Target Indoor Air Concentration for TCE of 0.19 ppb/v. CTDPH also recommended that additional data be collected at eight locations that violate the CTDEP soil gas criteria and at locations where sampling has not occurred or where sampling is limited. As an alternative to an ongoing sampling program, CTDPH recommended that sub-slab ventilation systems be considered as a prudent public health action for each residential home in the area of interest. See *ATSDR Health Consultation*.

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### **4. Release or Threatened Release into the Environment of a Hazardous Substance or Pollutant or Contaminant**

EPA has documented at the Raymark Industries Inc. Superfund Site that numerous hazardous substances have been released into the environment. As it relates to groundwater, some of the hazardous substances released at the Site include, without limitation, trichloroethylene, 1,1-dichloroethylene, vinyl chloride, benzene, toluene, chlorobenzene, and 1,1,1-trichloroethane.

### **5. National Priorities List (NPL) Status**

The Raymark Industries, Inc. Site was listed on the NPL on April 25, 1995.

### **6. State and Local Authorities Role**

#### **a. State and Local Actions to Date**

The CTDEP and the Town of Stratford's Health Department have played an active role in analyzing data, developing a communication strategy, and in contacting citizens throughout the area that are, or potentially could be, impacted by contaminated groundwater from the Facility. The CTDPH, through funding from ATSDR, has also played a very active role in data review and developing risk recommendations. In November 2002, the CTDEP installed ventilation systems in five homes in the area of interest as a result of indoor air exceedences. The Town of Stratford has continuously requested that EPA collect data, evaluate potential indoor air risks, and take action, if necessary.

#### **b. Potential for Continued State/Local Response**

EPA anticipates that the high level of support from the CTDEP, CTDPH, and the Town of Stratford Health Department will continue. CTDEP has indicated that it would be willing to perform the proposed response action pursuant to a Cooperative Agreement between EPA and CTDEP.

## **III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT**

Conditions discussed in this Memorandum present potential threats of release of CERCLA hazardous substances threatening to public health, or welfare, or the environment based upon the factors set forth in the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 CFR 300.415(b)(2).

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### **1. Actual or potential exposure to hazardous substances or pollutants or contaminants by nearby human populations, animals or the food chain**

Residents of buildings in the neighborhood of interest have actual or potential exposures to hazardous substances through intrusion of VOC contaminated soil gas into indoor air through basements and foundations. VOCs have been detected in the groundwater and soil gas in the area of interest. Concentrations in indoor air in a number of residences sampled by EPA have exceeded both the EPA's and the CTDEP's health protective levels for TCE in indoor air. TCE is a hazardous substance as defined in CERCLA Section 101(14). Exposure to TCE in humans may cause, among other things, nervous system effects, liver and lung damage, and impaired heart function. There is also a potential for human exposure from other VOCs originating from the groundwater that may also have the potential to cause adverse health effects. The risks at the Site are documented in a Health Consultation prepared by the CTDPH under a cooperative agreement with ATSDR.

## **IV. ENDANGERMENT DETERMINATION**

Actual or threatened releases of hazardous substances from this Site, if not addressed by implementing the response action selected in this Action Memorandum, may present an imminent and substantial endangerment to public health, or welfare, or the environment.

## **V. PROPOSED ACTIONS AND ESTIMATED COSTS**

### **A. PROPOSED ACTION**

#### **1. Proposed Action Description**

The proposed response action will be accomplished by removal of the pathway for indoor air intrusion by the installation of sub-slab ventilation systems that will divert the subsurface VOC contaminated soil gas away from building foundations by venting the soil gas outdoors. EPA plans to offer, but not require, a ventilation system to any residential home in the area of interest.<sup>1</sup> An evaluation of the ventilation systems will be conducted to confirm their effectiveness.

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<sup>1</sup> EPA determined the boundary of the area of interest based upon exceedances of CTDEP's proposed volatilization criteria for groundwater and soil gas. Generally, the area within the area of interest exceeds such criteria. EPA, however, has included some homes in the area of interest that may not exceed such criteria as a conservative measure.

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EPA and/or CTDEP will perform the following actions.

- a.) Contact each resident in the area of interest to offer a system.
- b.) Conduct a site visit with contractors, state and local officials.
- c.) Coordinate and select design alternatives for the ventilation systems.
- d.) Design plans for each residential structure.
- e.) Develop a QA/QC plan.
- f.) Prepare a work plan for installation of the ventilation systems.
- g.) Install the ventilation systems.
- h.) Perform a post-installation evaluation to confirm the effectiveness of systems.
- i.) Take action, if necessary, if systems are not effective.

CTDEP has indicated that they are willing to assume responsibility for post-removal site control (that is, operation and maintenance) of the sub-slab ventilation systems.

As an alternative to the proposed response action, EPA could install ventilation systems in the two homes that exceeded EPA's TCE health-protective level and continue to monitor other locations. The proposed response action, however, is a prudent and protective action for a number of reasons. Three years of monitoring indicate that indoor air continues to exceed risk-based contaminant levels, and EPA does not expect that groundwater contamination will decrease significantly over the next several years or decades. The ventilation systems will mitigate any threat from TCE and other VOC contaminants. Further, the cost of continued sampling is estimated to be equal to or exceed the costs of installing ventilation systems.

### **2. Community Relations**

EPA will coordinate site activities as appropriate with the Town of Stratford, CTDEP, and CTDPH. EPA will inform the community via a bulletin/fact sheet, which will be distributed by hand and/or by mail to provide response action progress status. If EPA determines necessary, EPA will hold a public informational meeting. EPA will also inform a citizen's advisory committee, the Raymark Advisory Committee, of its actions.

### **3. Contribution to Remedial Performance**

EPA is performing separate Remedial Investigations/Feasibility Studies of groundwater and of soils and sediments throughout the Raymark Site. EPA is closely coordinating the proposed response action with all other Site activities to ensure that the response action complements the ongoing remedial investigations. As the installation of sub-slab systems will mitigate a potential threat from groundwater, the proposed response action will contribute to the efficient performance of any anticipated long-term remedial action to address releases and threats of releases relating to groundwater from the former Raymark Facility. Given the potential threats, this action is a prudent step to mitigate risks prior to completion of the Remedial Investigation/Feasibility Study for groundwater. These systems will remain in place and be

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maintained at least until the final remedial decision for groundwater addresses long term concerns about indoor air.

### 4. Description of Alternative Technologies

The technology chosen for this removal action has been proven effective. Should implementation become infeasible, alternative technologies will be evaluated.

### 5. Applicable or Relevant and Appropriate Requirements (ARARs)

Superfund regulations, 40 C.F.R. § 300.415(j), require that removal actions, to the extent practicable considering the exigencies of the situation, attain applicable or relevant and appropriate requirements (ARARs) under federal and, where more stringent, state laws. ARARs are the substantive (but not administrative) aspects of cleanup standards, standards of control, and environmental protection requirements promulgated under state or federal law. Applicable requirements specifically address a hazardous substance, remedial action, location, or other circumstance at a CERCLA site. Relevant and appropriate requirements, while not “applicable,” address problems or situations sufficiently similar to those encountered at the CERCLA site that their use is particularly well suited to the particular site. Section 121(e)(1) of the Superfund law provides that actions carried out under Superfund do not require federal, state or local permits.

Exhibit 1, attached to this Memorandum, contains a list of the ARARs for this action, with attainment status for each ARAR.

### 6. Project Schedule

Response actions will commence after the signing of this Action Memorandum, depending on the availability of funds. Completion of the proposed response action is expected within four or five months of the start date, except as may be extended by winter weather.

## B. ESTIMATED COSTS

### Extramural Costs

<u>Regional Removal Allowance Costs</u>	\$0
Removal Contractor	
<u>Other Extramural Costs Not Funded from the Regional Allowance:<sup>2</sup></u>	\$855,000

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<sup>2</sup> EPA anticipates that the CTDEP will perform this removal action under a Cooperative Agreement. EPA’s funds for this response action will come from a special account established for

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SUBTOTAL, Extramural Costs	<u>\$855,000</u>
Extramural Costs Contingency (20% of Subtotal, Extramural Costs; rounded)	<u>\$171,000</u>
TOTAL, REMOVAL ACTION PROJECT CEILING: <sup>3</sup>	<u>\$1,026,000</u>

**VI. EXPECTED CHANGES IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN**

Delayed action will increase the potential health risks to the residential occupants posed by the presence of indoor air contaminants from VOCs in the groundwater.

**VII. OUTSTANDING POLICY ISSUES**

The sub-slab ventilation systems proposed for this action are a proven technology and do not present any outstanding policy issues. The risks from indoor air levels from TCE are calculated according to EPA's national reassessment of the toxicity of TCE published in August 2001. See *Memorandum from Sarah Levinson*, EPA Human Health Risk Assessor, dated July 3, 2003.

**VIII. ENFORCEMENT**

In January 1997, the United States sued a potentially responsible party, Raymark Industries, Inc. for past and future cleanup costs. The Raymark Facility was also named as a defendant to facilitate a judicial sale of the property. In August 1998, a Connecticut federal district court ordered that the property be sold and certain proceeds paid to the United States and the State of Connecticut. The EPA has received funding as a result of these actions, which was placed into a special account. The cost of the proposed response action will be paid out of the special account. Raymark Industries, Inc. is in bankruptcy and is unable to complete the proposed response action.

EPA's total estimated project-related costs of the removal action are the sum of the direct and indirect costs calculated as follows:

**Direct Costs:** \$1,026,000 (total direct extramural costs) plus \$100,000 (direct intramural costs) = \$1,126,000.

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the Raymark Site.

<sup>3</sup> EPA's prior response action pursuant to an Action Memorandum dated June 25, 2001 had a Project Ceiling of \$70,000.

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**Indirect Costs:** \$1,126,000 (total of direct costs) times 27.9% (regional estimated indirect rate) = \$ 314,154.

**Total project-related costs:** \$1,126,000 (total of direct costs) plus \$314,154 (indirect costs) = \$1,440,154.

The total EPA costs for this proposed response action based upon full-cost accounting practices that will be eligible for cost recovery are estimated to be \$1,440,154.<sup>4</sup>

**IX. SUMMARY OF CRITERIA FOR CONDUCTING THE REMOVAL ACTION**

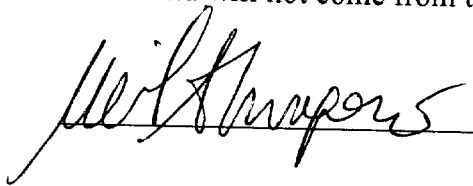
"Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants or contaminants" [300.415(b)(2)(i)].

**X. RECOMMENDATION**

This decision document represents the proposed removal action regarding indoor air at the Raymark Industries, Inc. Superfund Site in Stratford, Connecticut, developed in accordance with CERCLA, as amended, and not inconsistent with the National Contingency Plan. This decision is based on the Administrative Record for the Site.

Conditions discussed in this Action Memorandum meet the NCP Section 300.415(b) criteria for a removal action, and we recommend your approval of the proposed removal action. The Total Removal Action Project Ceiling if approved will be \$1,026,000. This amount will be paid out of the Raymark special account and will not come from the Regional Removal Allowance.

APPROVAL:



DATE:

Sept 2, 2003

DISAPPROVAL: \_\_\_\_\_

DATE: \_\_\_\_\_

<sup>4</sup> Direct costs include direct extramural costs and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost accounting methodology effective October 2, 2000. These estimates do not include pre-judgement interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual costs from this estimate will affect the United States' right to cost recovery.

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Exhibits

ARARs Chart

Attachments

Figure 1 (Area of Interest) dated August 27, 2003

Administrative Record Index

Health Consultation

Action Memorandum dated June 25, 2001

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**EXHIBIT 1**

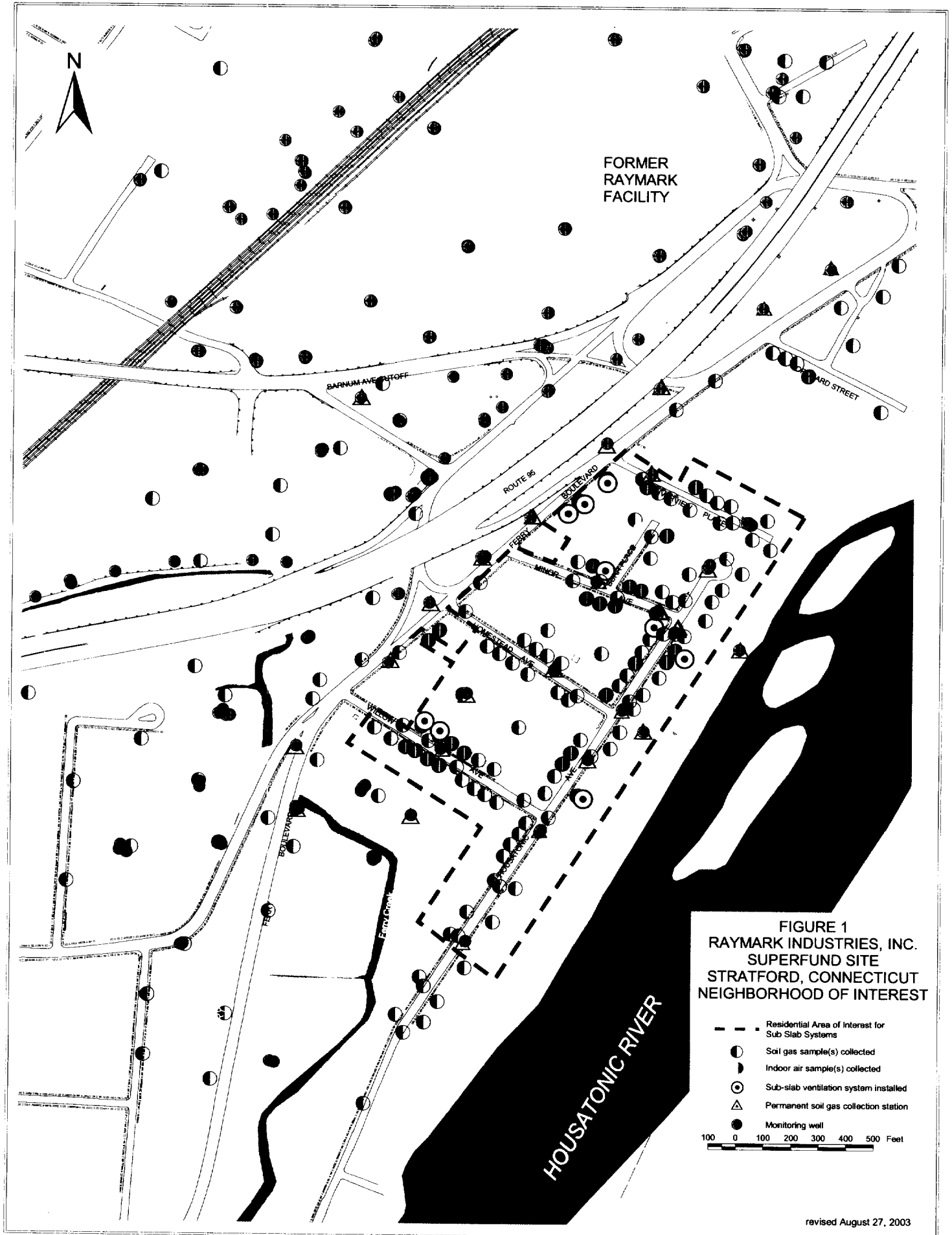
**APPLICABLE AND RELEVANT AND APPROPRIATE REQUIREMENTS (ARARs) FOR  
INDOOR AIR REMOVAL ACTION MEMORANDUM  
RAYMARK INDUSTRIES, INC SUPERFUND SITE**

Requirement	Citation	Status	Synopsis of Requirement	Attainment Status
Remediation Standard Regulations	RCSA 22a-133k -3(c)	Relevant and Appropriate	These regulations provide specific numeric criteria to address volatilization of soil gas and groundwater. If criteria are not met, further monitoring and action are generally required.	The installation of the sub-slab ventilation systems will comply with these requirements.
Reporting of Certain Significant Environmental Hazards by Owners of Contaminated Real Property	CGS 22a-6u	Relevant and appropriate.	When certain conditions described in the regulation are encountered by a technical environmental professional collecting soil, water, vapor or air samples for the purposes of investigating or remediating sources of pollution to the waters of the State, certain notifications to the property owner, the CTDEP Commissioner, and, in some cases, the local fire department are required.	The removal action will comply with these requirements, if the conditions described in the regulation are encountered.
Report of Discharge, Spill, Loss, Seepage, or Filtration	CGS 22a-450	Applicable	Requires reporting of spills to CTDEP.	Any spills described in the regulation will be reported.

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Air Pollution Control- Control of Particulate Emissions	RCSA 22a- 174-18(a) and 18(b)	Applicable	This subsection sets specific standards for particulate emissions. Specific standards include Visible Emissions (18(a)) and Fugitive Dust (18(b)).	Construction activities and emissions from the ventilation systems will comply with these requirements.
Air Pollution Control- Control of Odors	RCSA 22a- 174-23(c)	Relevant and appropriate	This subsection prohibits emission of any substance that constitutes a nuisance because of objectionable odor and sets numeric standards for certain substances.	Ventilation systems and construction activities will comply with the numeric requirements.
Air Pollution Control- Control of Hazardous Air Pollutants	RCSA 22a- 174-29(a-c)	Applicable	This section establishes allowable stack concentrations for many specific substances.	Emissions from the ventilation systems will attain the allowable stack concentrations.
Underground Utility One Call System (Call Before You Dig)	RCSA 16- 345-1 to 345- 9	Relevant and Appropriate	If any excavation by powered or mechanized equipment is to take place, the operator must request utility markouts through the Call Before You Dig clearinghouse at least two full working days prior to starting excavation.	Construction activities will comply with these requirements. No or limited excavation is anticipated.
US EPA Draft Subsurface Vapor Intrusion Guidance		TBC*	The Draft Subsurface Vapor Intrusion Guidance provides a screening evaluation as to whether vapor intrusion may pose an unacceptable risk to human health.	EPA considered the guidance in its decision.

\* TBC stands for To Be Considered. TBC materials are non-binding guidance that are considered along with ARARs in assessing risks and determining cleanup levels at Superfund sites.



**FIGURE 1**  
**RAYMARK INDUSTRIES, INC.**  
**SUPERFUND SITE**  
**STRATFORD, CONNECTICUT**  
**NEIGHBORHOOD OF INTEREST**

- Residential Area of Interest for Sub Slab Systems
  - Soil gas sample(s) collected
  - ◐ Indoor air sample(s) collected
  - ⊙ Sub-slab ventilation system installed
  - ▲ Permanent soil gas collection station
  - Monitoring well
- 100 0 100 200 300 400 500 Feet

revised August 27, 2003

Originals