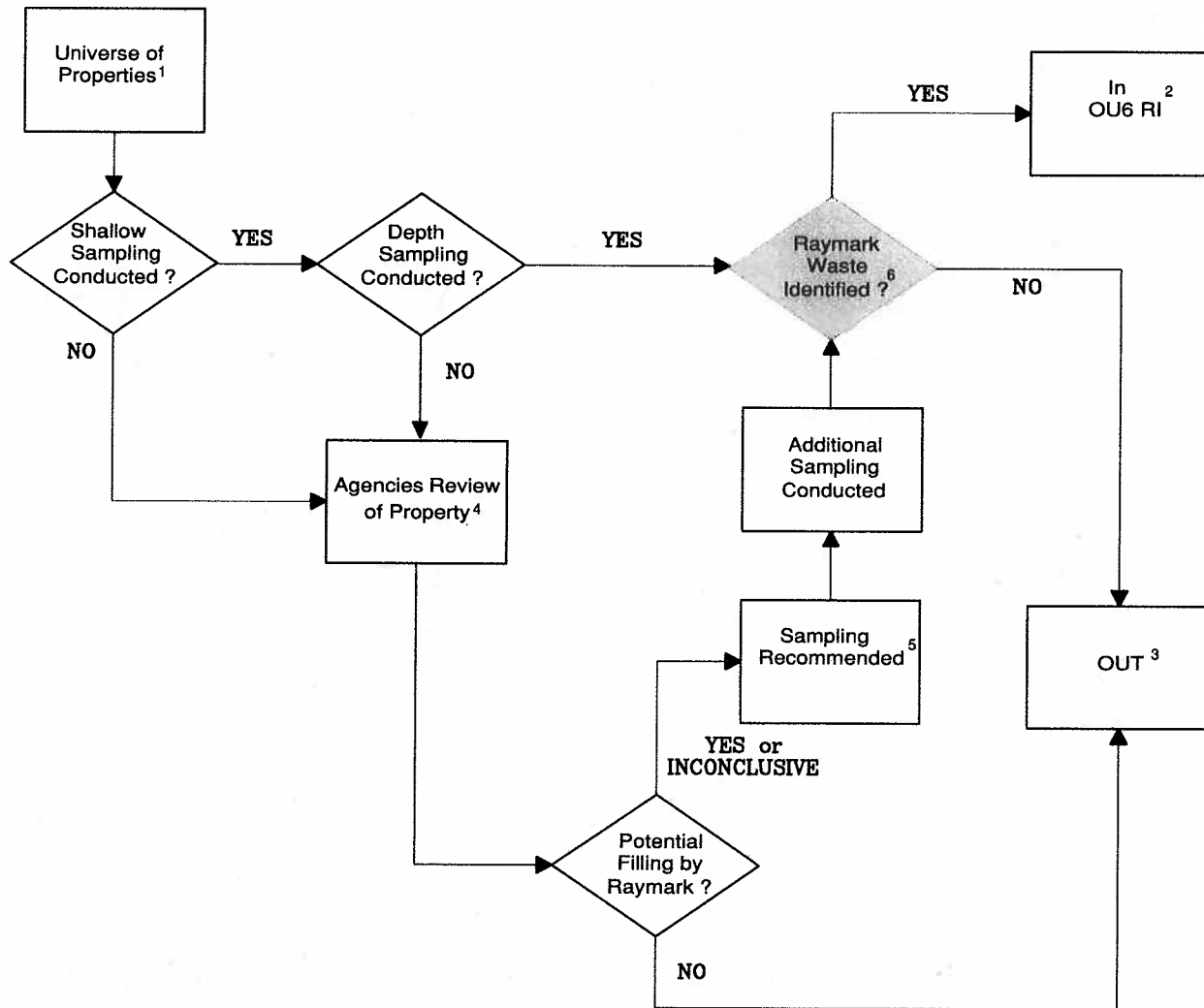


PROPERTY EVALUATION FLOW CHART



See Figure 2-2: "Flowchart For Identifying Raymark Waste in Soil"

PROPERTY EVALUATION FLOW CHART

FIGURE 2-1

RAYMARK - OU6

STRATFORD, CONNECTICUT



TETRA TECH NUS, INC.

DRAWN BY: R.G.D. / D.W.M.

DATE: JANUARY 2004

CHECKED BY: H.M. FORD

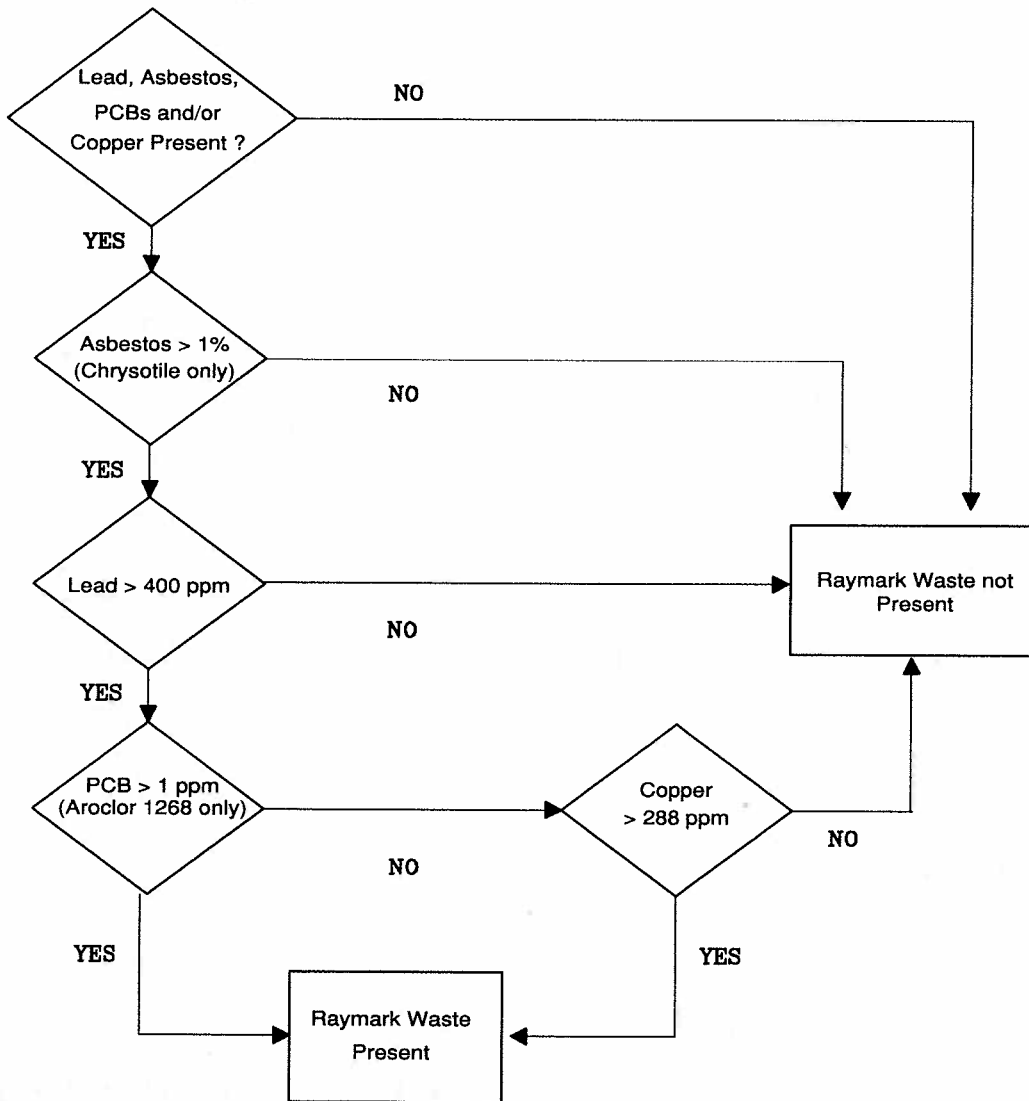
ACAD NAME: DWG\4106\0900\FIG_2-1.DWG.DWG

55 Jonspin Road

Wilmington, MA 01887

(978)658-7899

**FLOW CHART FOR IDENTIFYING
RAYMARK WASTE IN SOIL**




Notes:

1. All results from a single sample at the same depth interval.

IDENTIFYING RAYMARK WASTE IN SOIL FLOW CHART	
RAYMARK - OU6	
STRATFORD, CONNECTICUT	
DRAWN BY: R.G.D. / D.W.M.	DATE: JANUARY 2004
CHECKED BY: H.M. FORD	ACAD NAME: DWG\4106\0900\FIG_2-2.DWG

FIGURE 2-2


TETRA TECH NUS, INC.

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Identification of Properties*

The Universe of Properties[†] evaluated as part of this RI included all properties that had been identified over a 10-year period where there was a potential for Raymark waste to be present (see Figure 2-1). These locations were identified by a number of sources including, but not limited to, officials of the Town of Stratford, Raymark records and/or former employees, historical records, analytical data, and neighbors/citizens. Reasons for identification included, without limitation, knowledge of past filling/disposal activities and locations, property conditions and topography, proximity to the former Raymark Facility, and proximity to areas subject to excavation actions by EPA's Removal Program. Each property was evaluated to determine whether adequate sampling had been previously conducted to evaluate the potential presence of Raymark waste. Both EPA and the CT DEP (the Agencies) participated in these evaluations.

Specifically, if adequate shallow (0-2 feet) and depth (>2 feet) samples had been collected, then an assessment for the presence of Raymark waste was made based on a comparison of the sampling results to the definition of Raymark waste described in Section 2.2. If Raymark waste was identified on the property (that is, if the sampling results met the definition of Raymark waste), then the property was included in the Raymark Operable Unit No. 6 Remedial Investigation Report (OU6 RI²). If Raymark waste was not identified, then the property was "out"³ of the evaluation process and no further action would be needed under Superfund.

If only shallow samples were collected or if no shallow or depth samples had been collected, the Agencies, with input from the town, reviewed the property to determine the potential for Raymark waste to be present in soil on the property. The Agencies⁴ determination of whether or not there was a potential for Raymark waste to be present on a property was based upon a number of factors. These factors included, without limitation, input from Town officials (Town of Stratford, 2002/2003), evidence of past filling/disposal activities and locations, property conditions and topography, analytical data, aerial photography, proximity to the former Raymark Facility, proximity to areas subject to excavation by EPA's Removal Program, and evaluations and recommendations made by the federal Agency for Toxic Substances and Disease Registry

* Footnotes in Sections 2.1 and 2.2 reflect points of decisions as shown on Figure 2-4 for identifying Raymark waste.

(ATSDR) and/or the Connecticut Department of Public Health (CT DPH). Further, if a property abutted another property that had either been subject to an EPA removal action or was determined to contain Raymark waste, then that property usually was recommended for shallow and depth sampling particularly if the Raymark waste portion of the removal property abutted it.

If the Agencies determined that there was not a potential for Raymark waste to be present on a property, then the property was considered "out" of the evaluation process and not part of the OU6 RI. If the Agencies determined there was a potential for Raymark waste to be present or if the evidence was inconclusive, then additional sampling was recommended⁵. At the conclusion of such sampling, analytical results were compared to the definition of Raymark waste. If Raymark waste was identified on a property, then the property was included in the OU6 RI. If Raymark waste was not identified on a property, the property was considered "out" of the evaluation process and no further action would be performed under Superfund.

Definition of Raymark Waste

All determinations of the presence or absence of Raymark waste (Raymark Waste Identified⁶) were based on the following definition of Raymark waste: Raymark waste in soil is defined as a single soil sample at the same depth interval containing lead above 400 parts per million (ppm) (milligrams per kilogram (mg/kg)) **and** asbestos (chrysotile only) greater than 1 percent **and** **either** copper above 288 ppm (mg/kg) **or** polychlorinated biphenyls (PCBs)(Aroclor 1268 only) above 1 ppm (mg/kg). This definition was developed by EPA, in consultation with the CTDEP, and reviewed by the Raymark Advisory Committee's consultant, prior to evaluation of sampling data from properties.

Properties that have soil samples with analytical results meeting the Raymark waste definition, and have not undergone a removal action, or are not included under other operable units as discussed in Section 1.3.3, are presented in this RI Report. A list of these properties is shown on Table 1-1. A Human Health Risk Assessment (HHRA) was performed to estimate potential current and/or future risks to the public from the contaminants detected in soils at each property containing Raymark waste. The results of these evaluations are presented for each property in Section 3.

As shown on Figure 2-2, details of the development of the Raymark waste definition are as follows:

1. **Lead** - Lead was selected as an identifying contaminant of Raymark waste as it was used in the fabrication of various brake and friction materials in the Raymark manufacturing process. Raymark acknowledged in its RCRA "Part A application" that up to 2.5 billion gallons of lead-contaminated waste liquid flowed through its on-site lagoons on an annual basis. The on-site lagoons were routinely dredged and the spoils were disposed of on the facility property and at other locations throughout the town. The soils and sediments on the former Raymark Facility, in particular the on-site lagoons, contained high levels of lead.

Lead was identified as a contaminant of concern because it appeared in most samples collected during the 1992 – 1994 sampling on the former Raymark Facility

(elevated lead concentrations were found in process waste, imported fill, and native fill – the latter two assumed to be the result of leachate or cross contamination).

In addition, based on the samples collected on the former Raymark Facility and during the 1993 to 1995 removal actions, 400 mg/kg lead was selected by EPA and approved by ATSDR as a conservative permanently protective cleanup level for residential properties. This value was consistent with EPA's 1992 draft *Soil Screening Level Guidance and Revised Interim Soil Lead Guidance* document (EPA, 1992c). This document was later published in July 1994 as *Revised Interim Guidance on Establishing Soil Lead Guidance for CERCLA Sites and RCRA Corrective Action Facilities* (EPA, 1994b). This value was also consistent with the sample data obtained from the former Raymark Facility itself.

Currently, the 400 mg/kg lead standard remains because it meets the new proposed Connecticut Remediation Standard Regulations (CT RSRs) for residential properties. In an effort to differentiate this contaminant from lead paint from a home or business, the presence of lead and asbestos in the same sample will further identify it as Raymark waste.

2. **Asbestos** - Asbestos was selected as an identifying contaminant of Raymark waste by EPA in 1993 because of its dominance in the waste materials from the 1993 to 1995 removal actions and from samples collected at the former Raymark Facility. The one percent definition was set because it meets the National Emission Standards for Hazardous Air Pollutants (NESHAP) definition for an asbestos-containing material (EPA, 1990a). Currently, the Raymark waste definition remains at one percent, identifying the asbestos as chrysotile asbestos.
3. **PCBs** – PCBs were selected as an identifying contaminant of Raymark waste because of their predominance in samples collected at the former Raymark Facility and given that PCBs do not occur naturally in the environment. A concentration of 1 mg/kg total PCB was adopted by EPA for use in previous removal actions since unrestricted exposure to 1 mg/kg or less of total PCBs has been deemed safe by EPA (OSWER Directive: *Remedial Actions for Superfund Sites with PCB Contamination*) (EPA, 1990b). Based on historical sampling, EPA further believes

that the majority of PCBs at the former Raymark Facility resemble Aroclor 1268 rather than the other PCB Aroclors (including Aroclor 1262 which was also found consistently at the Raymark Facility). As such, EPA has refined the definition of Raymark waste from the general term "total PCBs" to the more descriptive term "Aroclor 1268" as noted below. Samples collected at the former Raymark Facility, and during the 1993 to 1995 removal actions, indicated that PCBs were contained in the waste materials. Using this information, PCBs were selected as an identifying contaminant of Raymark waste. In 1993, the 1 mg/kg total PCB standard was selected based on the OSWER directive from August 1990, *Remedial Actions for Superfund Sites with PCB Contamination* (EPA, 1990b). Pursuant to this guidance, samples from properties collected from 1993 to 1995 with PCBs greater than 1 mg/kg were considered above the action level that is protective of human health in a residential exposure scenario without institutional controls. Currently this standard remains at the 1 mg/kg standard for ~~lead~~. PCBs

Currently, the definition of Raymark waste has been refined to state that the PCBs action level is greater than 1 mg/kg Aroclor 1268, for the reasons described below. Aroclor 1262 was dismissed because it was not considered exclusively unique to the former Raymark Facility samples.

- *Wipe samples, taken within the former Raymark Facility buildings that contained processes that most likely used PCBs, had Aroclor 1268.*
- *Samples collected by former Raymark Facility consultants, from the sediments and soils on the facility property where off-specification process waste was dumped to fill in low spots on the property, indicated Aroclor 1268.*
- *Knowledge that PCB usage was probable in manufacturing processes such as Raymark's (plasticizers in phenolic resins and as wax extenders).*
- *No other known users of 1268 Aroclors have been identified in the area (either to jointly dump materials on the properties throughout Stratford and/or to provide disposal materials to Raymark as imported fill material. EPA*

assumes that any fill materials brought onto the Raymark property would have been from local sources as a cost savings to the company).

- *Samples taken from known Raymark waste disposal areas around Stratford over the past 10 years have indicated Aroclor 1268.*

4. **Copper** - Copper was selected as an identifying contaminant because of its predominance in the Raymark waste from samples collected from the 1993 to 1995 removal actions, and the former Raymark Facility. The 288 mg/kg standard was selected by EPA as the identifying benchmark as it is ten times greater than average background concentrations (see Table 1-3).