DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: **Mattaco, Inc. (former Mattatuck Manufacturing Co.)**
Facility Address: **1981 East Main Street, Waterbury, CT**
Facility EPA ID #: **CTD 001165760**

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

Y If yes - check here and continue with #2 below.
_ If no - re-evaluate existing data, or
_ if data are not available skip to #6 and enter"IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near-term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

***** ACRONYMS and ABBREVIATIONS used in responses on this form are given at the end of the form.**

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	Yes	No	?	Rationale / Key Contaminants
Groundwater	Y	-	-	**1985-1999 GW monitoring data / TPH, including free petroleum product; Metals: cadmium, nickel, zinc; VOCs: 1,1-DCE, PCE, TCA, TCE, MC.**
Air (indoors)[2]	-	No	-	**Buildings unoccupied since 1992; based on VOCs in the GW, potential contaminants are /VOCs: 1,1-DCE, TCE, MC.**
Surface Soil (e.g. <2 ft)	Y	-	-	**1984-1999 soil sampling data / TPH; Metals: lead (SPLP)**
Surface Water	-	-	?	**Based on GW contamination, potential contaminants are / Metals: cadmium, nickel, zinc;VOCs:1,1-DCE, PCE, TCE.**
Sediment	-	-	?	**Insufficient data; potential contaminants are / Metals: cadmium, nickel, zinc**
Subsurf. Soil (e.g., >2 ft)	Y	-	-	**1984-1999 soil sampling data /TPH; Metals: lead (total).**
Air (outdoors)	-	No	-	**Based on concentration of VOCs in the GW/ potential contaminants are VOCs: 1,1-DCE, TCE, MC.**

_ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

Y If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

_ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

1) Risk-based levels used for each medium are as follows (Table 1):
Groundwater Connecticut Remediation Standard Regulations (CT RSR) criteria for GB areas including: Surface Water Protection Criteria (SWPC); Volatilization Criteria (VC);no interference with any existing use of the GW.
Indoor & Outdoor Air CT RSR Industrial/Commercial Volatilization Criteria (I/C VC).
Surface & Subsurface Soil CT RSR Industrial/Commercial Direct Exposure Criteria (I/C DEC) and Pollutant Mobility Criteria (PMC) in soils for GB areas.

2) Groundwater It seems there is no use of the GW at and downgradient of the site. However NAPL (free petroleum product) is present on a small portion and could pose risk during current remediation activities. Contaminant plumes for metals and VOCs exist on small portions of the site and discharge to the Mad River.

Surface & Subsurface Soil Extensive investigations have been completed under CT Property Transfer Program since December 1996. TPH is the major contaminant (up to 90,000 mg/kg in shallow soils; 80,000 mg/kg at 5-7 ft below ground surface (bgs)) existing on the large portion of the site, southeast from the buildings.. Remediation (extensive soil excavation) is under way in accordance with the July 1998 Revised Remediation Plan prepared by Charter Oak Envir. Services, Mansfield, CT (Ref. 1).

Sediments The effluent from the former metal hydroxide settling lagoons (surface impoundments) was directly discharged to the Mad River from the 1970s to 1985.

Outdoor Air Several VOCs are just slightly above the appropriate I/C VC; however could pose risk during current excavation activities.

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

	Potential **Human Receptors** (Under Current Conditions)						
"Contaminated" Media	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater	**No**	**No**	**No**	**Yes**	**No**	**Yes**	**Yes**
Air (indoors)	**No**	**No**	**No**	**No**	**No**	**No**	**No**
Soil (surface, e.g., <2 ft)	**No**	**No**	**No**	**Yes**	**Yes**	**No**	**No**
Surface Water	**No**	**No**	**No**	**No**	**No**	**Yes**	**Yes**
Sediments	**No**	**No**	**No**	**No**	**Yes**	**Yes**	**Yes**
Soil (subsurface e.g., >2 ft)	**No**	**No**	**No**	**Yes**	**No**	**No**	**No**
Air (outdoors)	**No**	**No**	**No**	**No**	**No**	**No**	**No**

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated") as identified in #2 above.
2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

Y If yes (pathways are complete for any "Contaminated" Media - Human Receptor combination)-continue after providing supporting explanation.

_ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code

Rationale and Reference(s):
The site usage assumes continued industrial setting.
Surface & Subsurface Soil At this evaluation, current extensive soil remediation (excavation) activities at the site are considered as "construction" activities. These activities might increase risk to trespassers and personnel involved in excavation. However, the risk to the personnel could be reduced or eliminated by following a health and safety plan.
Sediments; Surface Water Residents and trespassers may be potentially exposed to contaminants during recreational activity, including fishing in the Mad River. Further evaluation of contaminants in sediments and surface water in the Mad River is necessary.
Outdoor Air Several VOCs are just slightly above the appropriate I/C VC.

[3] Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable "levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

_ If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

Y If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

_ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

<u>Surface & Subsurface Soil</u> **High level of TPH contamination exists on a large portion of the site. According to the July 1999 Revised Remediation Plan, the areas requiring remediation are: 1.2 acre for shallow soils (0-2 ft deep) and 0.9 acre for deeper (5-7 ft) soils (Ref. 1).**

[4] If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

5 Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

_ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

No If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

_ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

High level of TPH contamination in Surface & Subsurface Soils on a large portion of the site could pose risk of potentially "unacceptable" human exposure, specifically for trespassers. The risk to the personnel involved in the remediation activities could be reduced or eliminated by following a health and safety plan.

This determination can be re-evaluated when the remediation activities under the current plan will be completed.

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

7.

_ YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the _____ _____ facility, EPA ID #_____, located at _____ under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

NO NO - "Current Human Exposures" are NOT "Under Control."

_ IN - More information is needed to make a determination.

Completed by (signature) Gene Shteynberg Date **September 1 , 1999**
(print) **Gennady G. Shteynberg**
(title) **Environmental Analyst 3**

EPA
Juan A Perez 11/18/99
Environmental Scientist

Supervisor (signature)_____ Date **September , 1999**
(print) **John England**
(title) **Supervising Environmental Analyst**

Locations where References may be found:

* **Connecticut Department of Environmental Protection, File Room 79 Elm Street, Hartford, CT 06106**
* **US EPA Region I, John F. Kennedy Federal Building, Boston, MA 02203**

1) **Revised Remediation Plan; Former Mattatuck Manufacturing Facility. Prepared for Mattaco, Inc. by Charter Oak Environmental Services, Inc., September 1999**
2) **TES V Final Draft RCRA Facility Assessment. Prepared for EPA by CDM Federal Programs Corporation, June 1992**
3) **Post-Closure Part B Permit Application. Prepared for Mattatuck Manufacturing Co. by Consulting Environmental Engineers, Inc., November 1990**

Figures: 1 Site Location Map
2 Site Layout Plan

Tables: 1 Survey of Numerical Criteria, CTDEP Remediation Standard Regulations
2 Acronyms and Abbreviation List

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FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.