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: Kendro Laboratory Products
Facility Address: 31 Pecks Lane
Facility EPA ID #: Newtown, CT 06470-2337

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?

__x__ 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).

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	x	___	___	TCE, 1,1,1-TCA, and breakdown products found in sand, gravel, and bedrock aquifers downgradient of the facility.
Air (indoors)[2]	___	_x_	___	Indoor air contamination is not suspected.
Surface Soil (e.g., <2 ft)	___	_x_	___	
Surface Water	___	_x_	___	Maximum level of total VOCs detected in surface water was 7.5 μg/l.
Sediment	___	_x_	___	Based on information on contaminant releases, sediment contamination is not suspected
Subsurf. Soil (e.g., >2 ft)	_x_	___	___	See description below.
Air (outdoors)	___	_x_	___	Outdoor air contamination is not suspected

_____ 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.

__x__ 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):
The suspected source of the Volatile Organic Compound (VOC) plume at the facility is the former waste coolant tank which was removed in 1989, along with 2 cubic yards of contaminated soils. Extensive soil sampling at all potential source areas, including this former tank, indicates that there is no remaining source area. While 1,1,1-TCA, TCE, and PCE were detected at elevated levels in a few isolated locations within the unsaturated zone, levels of these VOCs were below Connecticut Remediation Standard Regulation (CT RSR) Industrial/Commercial Direct Exposure Criteria and GB Pollutant Mobility Criteria. The only soil sample result which exceeded the CT RSR Industrial/Commercial Direct Exposure Criteria was collected from 8-10 feet depth in the location of the former waste coolant tank (AOC 10-B1, 4400 mg/Kg TPH reported in GZA, 1998).

Air contamination is not suspected as a result of releases from this facility. Elevated levels of VOCs are present in groundwater in the surficial sand aquifer immediately downgradient from the facility. However, no buildings currently exist over this area of the plume and outdoor air is not expected to be impacted, based on the concentrations in groundwater. Approximately 400 feet downgradient of the southesast corner of the facility building, surficial groundwater discharges to Loma Pond, a man-made pond which exists as a result of sand and gravel excavation activities. Downgradient of this pond VOCs are non-detect in the surficial sand aquifer, but still detectable, though at levels below CT RSR GA/GAA Groundwater Protection Criteria, in groundwater in the deeper gravel and bedrock units (GZA, 1998). While there are some houses downgradient of Loma Pond, the indoor air pathway is not suspected to be a concern as there are no VOCs detectable in the surficial sand aquifer.

Groundwater discharges to both Loma Pond and the Pootatuck River, further downgradient of the facility. Surface water samples collected from Loma Pond in 1991 detected 1,1,1-trichloroethane at concentrations

up to 7.5 μg/l (SG-4, reported in ERM, 1992) which is below CT RSR GA/GAA Groundwater Protection Criteria. Based on these low levels, sediment contamination resulting from facility activities would not be expected. Elevated levels of VOCs would not be expected in the Pootatuck River, as immediately upgradient wells screened in the gravel unit, which discharges to the river, detected VOCs below the CT RSR GA/GAA Groundwater Protection Criteria (GZA, 1998).

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	no			no
~~Air (indoors)~~	___	___	___				
~~Soil (surface, e.g., <2 ft)~~	___	___	___	___	___	___	___
~~Surface Water~~	___	___			___	___	___
~~Sediment~~	___	___			___	___	___
Soil (subsurface e.g., >2 ft)		no		no			no
~~Air (outdoors)~~	___	___	___	___	___		

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.

__x__ 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).

_____ 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): In 1991, Public water was provided to all downgradient potable wells (along Mile Hill Road South and Turkey Hill Road) under Connecticut DEP Water Supply Order (WC5005). On April 9, 2000, CT DEP reclassified groundwater downgradient of the facility from GA to GB (DuPont, 2000). Until this year, there has been one active well in the plume area operated by the Newtown Garage for washing trucks. However, this well has since been disconnected. The only soil sample that exceeded CT RSR Direct Exposure Criteria was at a depth of 8 to 10 feet at the former waste coolant tank. Excavation to such a depth would be unlikely and the facility reports that there are no construction plans for this area.

[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."

_____ 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):

[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.

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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).

_____ 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):

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):

__x__ 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 Kendro Laboratory Products facility, EPA ID # CTD072115793, located at 31 Pecks Lane, Newtown, CT 06470 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 - "Current Human Exposures" are NOT "Under Control."

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

Completed by (signature) Stephanie Carr Date 8/30/00
(print) Stephanie Carr
(title) RCRA Facility Manager

Supervisor (signature) [signature] Date 9/11/00
(print)
(title)
(EPA Region or State)

Locations where References may be found:

- Phase III Hydrogeologic Investigation and Engineering Evaluation for the DuPont Newtown Site, prepared by ERM Inc. dated 7/31/92 (available in EPA - New England files)
- Letter report dated January 12, 1998 from Tom Stark, GZA to Craig Bartlett, DuPont (available in EPA - New England files)
- Letter dated May 8, 2000 from Craig Bartlett, GZA to Stephanie Carr, EPA (available in EPA New England files)

Contact telephone and e-mail numbers

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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