

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

RCRA RECORDS CENTER
FACILITY: Plainville Plating Co inc
I.D. NO. CTD001149459
FILE LOC. R-13
OTHER # 103919

Facility Name: Plainville Plating
Facility Address: 21 Forestville Avenue Plainville, CT 06062
Facility EPA ID #: CTD001149459

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).



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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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>X</u>	___	___	<u>Volatile organics and metals</u>
Air (indoors) ²	___	<u>X</u>	___	<u>No exceedances of the CTDEP Residential GW Volatilization Criteria (off-site monitoring) or OSHA PEL (on-site indoor air sampling) ¹</u>
Surface Soil (e.g., <2 ft)	___	<u>X</u>	___	<u>No exceedances of the CTDEP Industrial/ Commercial Direct Exposure Criteria in newly installed wells (9/03) located between facility and residential properties ²</u>
Surface Water	<u>X</u>	___	___	<u>metals and volatile organics</u>
Sediment	<u>X</u>	___	___	<u>Cadmium in excess of the CTDEP Residential Direct Exposure Criteria</u>
Subsurf. Soil (e.g., >2 ft)	___	<u>X</u>	___	<u>No exceedances of the CTDEP Industrial/ Commercial Direct Exposure Criteria ²</u>
Air (outdoors)	___	<u>X</u>	___	<u>Emissions are in compliance</u>

___ 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): Groundwater: The area is classified as a GB area where designated uses are defined as "Industrial process water and cooling waters, base-flow for hydraulically-connected surface water bodies; presumed not suitable for human consumption without treatment." Groundwater samples collected in the past contained arsenic, cadmium, copper, cyanide, hexavalent chromium, lead, nickel, and zinc at levels exceeding the CTDEP Remediation Standard Regulations (RSRs) Surface Water Protection Criteria (SWPC). Cadmium, chromium, lead, nickel, 1,1-dichloroethylene, tetrachloroethylene, trichloroethylene, and 1,1,1-trichloroethane were detected at levels in excess of the CTDEP RSRs Groundwater Protection Criteria (GWPC) for a GA area. The most recent sampling indicated similar results with the exception of the lead and tetrachloroethylene exceedances. Refer to the annual, quarterly and semiannual groundwater monitoring reports.

Surface Water: Previous sampling in two unnamed streams located north and north-east of the facility identified exceedances of the EPA National Primary Drinking Water Standards Maximum Contaminant Levels (MCLs) and the CTDEP GWPC (used where no MCL exists) for 1,1,1-trichloroethane, cadmium, chromium and nickel. The most recent surface water sampling in these streams identified exceedances of the same criteria for cadmium, chromium, and nickel. Refer to the June 2000 RCRA Groundwater Monitoring Report and the August 10, 2001 letter report for April 2001 summary of field activities.

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Sediments: Sediment sampling conducted in two unnamed streams located north and north-east of the facility identified exceedances of the Residential Direct Exposure Criteria (DEC) for cadmium. Refer to the August 10, 2001 letter report for April 2001 summary of field activities and the September 12, 2003 report summarizing sediment sampling activities.

References:

1. Indoor Air Survey Letter Report 12/23/99 and the September 18, 2003 groundwater monitoring sampling data package.
2. AOC 6 Investigation Letter Report (appendix A to the 12/00 EI Determination) and AOC 9 Status Report 10/99

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.

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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)

<u>“Contaminated” Media</u>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	_N_	_N_	_N_	_N_			_N_
Air (indoors) N/A							
Soil (surface, e.g., <2 ft)	_N_	_Y_	_N_	_Y_	_N_	_N_	_N_
Surface Water	_Y_	_Y_			_Y_	_Y_	_N_
Sediment	_Y_	_Y_			_Y_	_Y_	_N_
Soil (subsurface e.g., >2 ft)				_Y_			_N_
Air (outdoors) N/A							

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).

X 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): Groundwater: The area is classified as a GB area where designated uses are defined as “Industrial process water and cooling waters, base-flow for hydraulically-connected surface water bodies; presumed not suitable for human consumption without treatment.” A preliminary receptor survey conducted in 1997 indicated that the area is supplied with public water. In addition, refer to the May 21, 1998 letter report that confirmed there is no use of groundwater in the zone of influence.

Surface water and sediment: The streams are located on private property and are not designated for recreational use. One section of a stream abuts residential backyards and is easily accessible to residents, trespassers and recreators. Workers may also occasionally be exposed when collecting samples and/or maintaining the facility NPDES outfall. Due to the elevated surface water and sediment contamination and

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evidence that the area was used for recreation (tree house and make-shift bridge across the stream) the residents were notified and the area was posted "No Trespassing" and "No Wading" after consult with the state and local public health departments (Refer to the October 23, 2001 Health Consultation completed by the CT Department of Public Health). The other stream is less accessible to trespassers and recreators due to its somewhat remote location and due to natural barriers such as overgrowth of trees and shrubs and its location within a wetland area.

Surface and Subsurface Soils: There were no exceedances of the CTDEP Industrial/Commercial Direct Exposure Criteria for soil sampling conducted on the facility property.

Footnotes:

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

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- 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): **Surface water and sediment:** As described in question 2, inorganic contamination has been detected in the most recent surface waters of the two unnamed streams that are located off-site, behind the facility. Cadmium is generally an order of magnitude greater than the MCL but was detected as high as two orders of magnitude above the MCL in a sample location close to facility. The one exceedance for chromium was two orders of magnitude greater than the MCL and was also collected at the same sample location close to facility. Exceedances of the CTDEP GWPC for nickel were typically just above the criteria with the exception of the same sample located close to facility that was approximately 7 times greater than the GWPC.

Sediment sampling indicates that cadmium concentration are as high as an order of magnitude above the CTDEP Residential DEC.

The criteria used for screening both surface water (MCLs and GWPC) and sediments (residential DEC) are expected to be conservative criteria for all potential receptors since (1) these streams are not used for a drinking water supply, (2) only incidental ingestion and limited dermal contact with surface water and sediments would be the likely exposure, (3) the actual contact with sediments for recreators, trespassers and workers is less frequent and of a lesser duration than would be expected in a residential exposure used to develop the DEC, and (4) access is naturally restricted in some areas and posting should further help to limit exposure in the area that abuts residential properties.

Footnotes:

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): _____

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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):

- 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 **Plainville Plating Company** facility, EPA ID # **CTD001149459**, located at **21 Forestville Ave. Plainville, CT** 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) *Carolyn J. Casey* Date 9/19/03
(print) Carolyn Casey
(title) RCRA Facility Manager

Supervisor * (signature) *Matthew R. Hoagland* Date 9/22/03
(print) Matthew R. Hoagland
(title) Section Chief, RCRA Corrective Action
(EPA Region or State) EPA New England

Locations where References may be found:

EPA New England files

Contact telephone and e-mail numbers

(name) Tom Dorman
(phone #) (860) 747-1624
(e-mail) _____

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.

** N.B. The paragraph under No. 1 of this EI titled "Relationship of EI to Final Remedies" applies to this site especially with respect to ground water, surface water, soil and sediments.*

MTH
9/22/03