

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: New Castle Industries, Inc., Tanner Plating Division  
Facility Address: 925 Industrial Street, New Castle, PA 16101  
Facility EPA ID #: PAD 010 466 688

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?

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 Controls" 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"<sup>1</sup> 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	X			See below
Air (indoors) <sup>2</sup>		X		See below
Surface Soil (e.g., <2 ft)	X			See below
Surface Water		X		See below
Sediment		X		See below
Subsurface Soil (e.g., >2 ft)	X			See below
Air (outdoors)		X		See below

If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient support 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 facility is situated on approximately 5.2 acres of land, zoned for industrial use. New Castle Industries operated as a large quantity generator of hazardous waste under USEPA ID number PAD010466688. The facility manufactured and re-manufactured calendar rolls for the production of plastic sheet products. Current and/or historic roll manufacturing began with receipt of steel tube of specified thickness and diameter. Sandblasting of the outer surface may be required to remove oxide scale. Final fabrication processes include machining the outer tube diameter to specified tolerances followed by chrome plating to provide a hardened surface. The outer chrome plated surface is further machined and polished to customer specifications and tolerances. The chromium plating area is located in the west-central portion of the building. The current system includes three active plating tanks and a floor drain system.

This site consists of historic fill extending 6 to 7 feet below grade. According to the Remedial Investigation, fill material was placed throughout the Shenango River Valley to elevate the ground surface for industrial development. Electroplating operations resulted in the release of metals to soil and groundwater at the property. The primary metals of concern in soil and groundwater are chromium, antimony, lead, and arsenic. Some chromium was found to be moving off-site in the groundwater. The facility continues manufacturing and plating at this address. A six foot high cyclone security fence surrounds the entire New Castle property and adjacent properties.

<sup>1</sup> "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).

<sup>2</sup> Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggests 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.

Electroplating operations resulted in the release of metals to soil and groundwater at the Tanner Plating property. The primary metal of concern from operations that are found in soil and groundwater is chromium. Remedial investigative findings show groundwater containing dissolved phase metals has migrated south/southeast under the off-site, downgradient industrial properties including BPI Minerals, Bridges & Towers, Adrian Realty (CSX Transportation), RESCO Products, Industrial Property Management, and Penn Power (First Energy). Soil and groundwater analytical data demonstrate that metals concentrations do not represent an unacceptable risk to human health or the environment, under a non-residential (commercial/industrial) land use scenario (i.e., excludes schools, nursing homes, or other residential-style facilities or recreational areas). Fate and transport modeling supports attainment of the PADEP Act 2 Site Specific Standard through exposure pathway elimination for hexavalent chromium and antimony in fill material/soil and chromium, antimony, and arsenic in groundwater.

An impermeable surface consisting of asphalt, concrete, 2-foot thick soil cover, or equivalent will be maintained overtop of a 100 foot by 26 foot area outside the current building and the Plating Area inside the current building. Groundwater exposure pathway elimination is assured through passage of a municipal ordinance in February 2010 by the City of New Castle titled "Ward Groundwater Use Restriction Area," which encompasses the site area. Passage of the referenced municipal ordinance was the basis for a Uniform Environmental Covenant Act (UECA) Waiver Request submitted to PADEP in a letter dated May 20, 2010 pertaining to off-site, downgradient properties. PADEP approved the UECA Waiver Request in a letter dated August 5, 2010. In addition, PADEP has approved a Non-Use Aquifer Determination for the adjacent and downgradient RESCO Products property (formerly New Castle Refractories, Inc. and Dixon Ticonderoga) in a letter dated October 1, 2009. For more details see: Remedial Investigation Final Report, Volume I and II, February 14, 2012.

Lead was detected at a concentration of 51,900 mg/kg in one surface fill sampling event (0-2 ft bgs) collected from TB-4 located at the eastern end of the New Castle building, during the Phase II ESA. The Direct Contact Medium Specific Concentrations (MSC) = 1,000 mg/kg, 450 mg/kg for soil to groundwater. Based on these sampling results, an area 4 ft X 6ftX 2ft was excavated, with the excavated materials manifested off-site.

The primary source of Chromium released to the subsurface was the former plating drain trough. The trough was replaced in 2003 with a chemical resistant fiberglass liner system. This trough replacement prevents further releases of Chromium to the subsurface.

The PADEP ACT2 MSC limit for Hexavalent Chromium fill is 190 mg/kg (in soil to groundwater pathway). The maximum exceedence at the facility was 260 mg/kg, only slightly over the regulated number of 190 mg/kg.

The PADEP ACT2 MSC limit for Arsenic fill is 53 mg/kg (in surface soil). The maximum exceedence at the facility was 55.9 mg/kg, only slightly over the regulated number of 53 mg/kg.

The PADEP ACT2 MSC limit for Antimony fill is 27 mg/kg (in surface soil). The maximum exceedence at the facility was 115 mg/kg, over the regulated number of 27 mg/kg.

See table 7a and 7b in Remedial Investigation Final Report, Volume I and II, February 14, 2012 for full results of the Fill Material/Soil Analytical Summary.

Under PADEP Act 2, liability protection is afforded to areas underlain by historic fill through closing in place by covering the fill with a suitable cover and using pathway elimination. The site constituents of concern (COC's) found in the fill material include Hexavalent Chromium, Antimony, Arsenic, and Lead. These COCs were detected at concentrations above PADEP MSCs and Historic Fill limits. They are located in restricted areas underlying two areas of the facility. The two areas exhibiting high levels of metals are the plating area, inside the facility, and the former plating tank ventilation and scrubber system area, located outside and along the building wall. These areas attained Site Specific Standard through incorporation of an engineering control, a surface cap overtop of the affected areas.

There are no completed pathways between "contamination" and human receptors.

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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>	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food</u> <sup>3</sup>
Groundwater	No	No	No	No	No	No	No
Air (indoors)	No	No	No	No	No	No	No
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No
Surface Water	No	No	No	No	No	No	No
Sediment	No	No	No	No	No	No	No
Soil (subsurface e.g., >2 ft)	No	No	No	No	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.

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):

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<sup>3</sup> 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" (i.e., potentially<sup>4</sup> "unacceptable" levels) 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):

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<sup>4</sup> 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 a "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 a "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 New Castle Industries, Inc., Tanner Plating Division facility, EPA ID # PAD 010 466 688, located at 925 Industrial Street, New Castle, PA 16101, under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

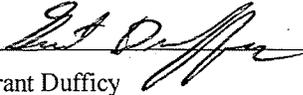
X  
\_\_\_\_\_

NO – "Current Human Exposures" are NOT "Under Control."  
\_\_\_\_\_

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

Completed by:

(signature)



Date

4/15/14

(print) Grant Dufficy

(title) RCRA Project Manager

Supervisor:

(signature)



Date

4-15-14

(print) Paul Gotthold

(title) Assoc. Dir., PA Remediation, LCD

(EPA Region or State) EPA Region III

Locations where References may be found:

References have been appended to the Environmental Indicator Report and can also be found at PADEP's Meadville office and USEPA's Region III office.

Contact telephone and e-mail numbers:

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(phone #) 215-814-3455

(e-mail) dufficy.grant@epa.gov

**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.**