

**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**

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

**Facility Name:** Elementis Pigments  
**Facility Address:** 1525 Wood Avenue Easton PA 18042  
**Facility EPA ID #:** PAD 002 391 548

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, GPRRA). 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		primary contaminate is inorganic
Surface Soil (e.g., <2 ft)	X			See Below
Surface Water			X	Releases in Spring Brook, but no recent surface water sampling data found
Sediment			X	Releases in Spring Brook, but no recent water sampling data found
Subsurface. Soil (e.g., >2 ft)	X			See Below
Air (outdoors)		X		primary contaminant is inorganic

\_\_\_\_\_ 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):**

**See response to Rationale/ References(s) on following page.**

Footnotes:

<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) 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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**Response to Question # 2 Rationale-Reference(s) Human Health**

**GROUNDWATER**

Acid Plant Subsurface Contamination Area-From 1988 through 1993, monitoring wells were installed and sampled; soil in this vicinity of the Acid Plant was also sampled. Analytical results from the sampling were summarized in the Harcross Pigments Facility Acid Plant Area Remedial Action Plan prepared by Alden Environmental Management Inc., and Environmental Standards, Inc., in January 1995. Of the nineteen monitoring wells and two pizometers sampled, pH of the groundwater from the wells ranged from 1.2 to 6.6. Much of the groundwater sampled contained high concentrations of dissolved iron with the highest concentration being 32,200 mg/L. Also volatile organic compounds and semi-volatile compounds were found in the groundwater samples from many of the wells. The following table summarizes those VOCs that were present in various groundwater sampling above PADEP MSCs.

Compound	Range of Groundwater Sample Concentrations (Ug/l)	PADEP Medium Specific Concentration (ug/l)
Benzene	Non Detect to 9000	5
Toluene	Non Detect to 2,900	1000
Ethylbenzene	Non Detect to 3,600	700
N-nitrosodl-n-propylamine	Non-Detect to 170	0.094
Naphthalene	Non-Detect to 850	20

Elementis currently operates a free product removal system to remediate the Acid plant area.

Surface Soil. Subsurface Soil-Soil samples collected in the area of the Acid plant during the groundwater sampling events described above, show a soil pH ranging from 1 to 9. These samples were collected up until 1995. No more recent soil sample data has been made available to Foster Wheeler for this area of the site.

In April of 2001, AST #041 A released fuel oil (unknown amount) into Bushkill Creek. Soil and groundwater samples from around the area of the tank indicated that product from the tank impacted the soil. A surface soil sample collected from inside the former containment area of the tank contained concentrations of benzo(a) pyrene (51mg/kg) and naphthalene (14mg/kg) which are above their respective PADEP MSCs for Soil. Foster Wheeler also found information indicating confirmatory samples were collected after an excavation of the area of Tank #041A. A completed Investigation Report or Remedial Action Plan for the area of Tank #041A. A completed Investigation report or Remedial Action Plan for the area of closure was not available for review at the time of this report as the reports have not been finalized. More information is needed to make an accurate decision regarding the extent and effects of soil contamination n the area of ASDT #041A, although no pathway to human exposure exists.

**Air (indoors)-The plant produces iron oxide. The plant also uses acids and petroleum products. The indoor levels are governed by OSHA standards.**

**Air (outdoors)-The plant has had complaints from residents about odors as mentioned by the Plant Manager**

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**during the site visit.**

**Surface water/sediment-The plant has had previous documented releases into Bushkill Creek, including a release into Spring Brook as recently as 2001. However, very limited sampling of surface water or sediment has been reported.**

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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)

<b><u>“Contaminated” Media</u></b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	No	NO__	NO__	NO__	NO	YES	YES
Air (indoors)		__	__				
Soil (surface, e.g., <2 ft)	NO__	YES__	NO__	YES__	YES__	NO__	NO__
Surface Water			uncertai				
Sediment	uncertai						
Soil (subsurface e.g., >2 ft)	NO	YES	NO	YES__	NO	NO	NO__
Air (outdoors)	uncertai						

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):**

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

Response to Rationale and Reference-Question 3

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It is not known if groundwater contamination is migrating off-site. Surrounding properties in the area include a mix of residential and industrial are supplied by public drinking water. There is one Private potable supply well that is currently unused and scheduled for replacement (see e-mail from R Duccheshi, PADEP).

Workers have the potential for contacting contaminated surface soil on-site as part of the work routine. Construction projects may cause exposure to potentially contaminated surface and subsurface soil contamination. Although the facility has a fence and is guarded, trespassers have been able to access onto the site previously. The potential for trespassers to be exposed to subsurface contamination is possible. Other potential receptors are not expected to be exposed to surface contamination.

Two human receptors likely to be exposed to subsurface contamination include workers and construction personnel. Both workers and construction personnel may have the need to excavate below the surface of this site in areas of subsurface contamination. Other potential human receptors do not have access to the soil below the surface.

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**<sup>4</sup> (i.e., potentially “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)?

  N   If no( exposures can not be reasonably expected to be significant (i.e. potentially “unacceptable” levels because exposures can 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 completed pathways) to contamination (identified as #3) are not expected “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)

       If unknown (for any complete pathway) - skip to #6 and enter “IN” status code.

**Rationale and Reference(s):**

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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):

- Y 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 Elementis Pigments \_\_\_\_\_ facility, EPA ID # PAD 002 391 548 \_\_\_\_\_, located at 1525 Wood Avenue Easton, PA \_\_\_\_\_ 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."
- \_\_\_\_\_ X IN - More information is needed to make a determination.

Completed by (signature) \_\_\_\_\_ /s/ \_\_\_\_\_ Date 9/30/03  
(print) \_\_\_\_\_  
(title) \_\_\_\_\_

Supervisor (signature) \_\_\_\_\_ /s/ \_\_\_\_\_ Date 9/30/03  
(print) \_\_\_\_\_  
(title) \_\_\_\_\_  
(EPA Region or State) \_\_\_\_\_

**Locations where References may be found:**

References have to be appended to the Environmental indicator Report and can be found at PADEP's Wilkes-Barre Regional Office and USEPA Region III's office.

**Contact telephone and e-mail numbers:**

(name) \_\_\_\_\_  
(phone #) \_\_\_\_\_  
(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.**

