

**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:** Rhodia, Inc. (formerly Rhône-Poulenc Basic Chemicals)  
**Facility Address:** 2300 South Pennsylvania Avenue, Morrisville, PA  
**Facility EPA ID #:** PAD002336410

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, GPRAs. 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			Investigation Data
Air (indoors) <sup>2</sup>		X		Investigation Data, Facility Operation
Surface Soil (e.g., <2 ft)		X		Facility Operation
Surface Water		X		Investigation Data
Sediment		X		Investigation Data, Facility Operation
Subsurf. Soil (e.g., >2 ft)	X			Investigation Data, Facility Operation
Air (outdoors)		X		Facility Operation

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

***Rationale is below. References are listed after Question 3.***

**Present and Future:**

The Human Exposures Under Control Environmental Indicator is intended to evaluate current conditions at the facility. At this time, EPA has assessed the environmental investigations information as well as the owners plan to not use the property or allow any access, and has determined that human exposures are under control.

EPA expects that any changes to the current and anticipated idled-state of the property may invalidate the exposure assumptions discussed in Questions 2 and 3. At such time, EPA will re-evaluate this Human Exposures Under Control Environmental Indicator and assess the potential exposure pathways. Therefore, EPA’s determination of Human Exposures Under Control may be modified in the future, according to new environmental data presented.

**Background:**

The Rhodia facility is located on 87 acres in an area zoned as ”Hi-Heavy Industrial.” The manufacturing facility sits on 40 acres, and the remaining 47 acres are wooded. The property is bordered on the north by a residential area, to the south by Biles Creek, and vacant property. On the east is the Delaware River, on the west are scrub areas. The

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<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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entire property is fenced to restrict access.

The facility has had a series of owner/operators, beginning with Victor Chemical in 1948. Stauffer Chemical bought the property in the mid-1960s, and subsequently sold it to Rhône-Poulenc Basic Chemicals (Rhône-Poulenc) in 1987. In 1997, Rhône-Poulenc formed Rhodia, Inc. (Rhodia) as a wholly owned subsidiary, and the facility has operated under Rhodia since early 1998. The facility ceased operations in late 2001.

During its history, a number of chemical products were produced at the facility. The uses of these products covered a wide range, including additives to food, dental paste, Comet commercial cleaner, and oil. Other products were used for water treatment, dyes, flame retardants and desiccants.

Some of the wastes generated by the production lines were treated and disposed of in on-site settling ponds and landfills. There are 10 defined waste disposal areas, primarily in the southern portion of the site. The wastes disposed of in these areas included: weak Monosodium-Disodium Liquor, Arsenic Residue, Stills Burnout Residue, and Arsenic Trisulfide.

**Current Environmental Condition**

Arsenic is the primary constituent of concern at this facility. The groundwater contains arsenic above the Maximum Concentration Limit (MCL) of 50 ug/l, which is a health-based standard for drinking water. The groundwater flows toward Biles Creek and the Delaware River. At the property boundary near the Delaware River, analysis shows arsenic concentrations up to 537 ug/l. At the boundary near Biles Creek, the arsenic levels are below the MCL.

All of processes have been shut down and the facility has no history of air releases or odor complaints. During its operation, the facility was not a major source of air emissions. There have been no significant releases in the past 20 years nor any failed air inspections.

Contaminated waste material was buried in several on-site landfills from 1948 through the mid-1970s. Although additional surface and subsurface soils sampling must be completed, information collected to date indicates the subsurface soils are contaminated with arsenic. The wastes reportedly placed in these landfills had hazardous levels of arsenic, and the groundwater samples taken directly beneath one of the landfills showed arsenic levels at 12,000 ug/l.

Surface water from the facility enters Biles Creek and eventually discharges to the Delaware River. Sampling in Biles Creek, as well as upgradient and downgradient in the Delaware River, showed no detection of arsenic in the surface water.

Sediment sampling was conducted at the time of the Settling Pond closure. Analysis showed that the sediments are not hazardous.

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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	N/A	No	No	N/A	N/A
Air (indoors)	—	—	—	—	—	—	—
Soil (surface, e.g., <2 ft)	—	—	—	—	—	—	—
Surface Water	—	—	—	—	—	—	—
Sediment	—	—	—	—	—	—	—
Soil (subsurface e.g., >2 ft)	No	No	N/A	No	No	N/A	N/A
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):**

**Rationale**

The facility shut down in all operations in late 2001. The facility is completely fenced in and areas of high contamination, such as the buried waste areas, are enclosed in additional fencing. Furthermore, no construction operations are anticipated. Therefore, there is no expected exposure to workers, construction works, residents, or

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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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trespassers from the soils or buried materials at the site.

The surrounding areas downstream of the facility are mostly industrial. The groundwater on-site is not currently used as a drinking water source and all monitoring well-heads are locked. The groundwater is flowing toward the Delaware River and Biles Creek, not toward any residential areas. Accidental contact with the groundwater by residents or anyone on the site is highly unlikely.

**References for Questions 2 and 3**

**Foster Wheeler, February 2002.** Final Environmental Indicator Inspection Report for Rhodia Inc. (Formerly Rhône -Poulenc Basic Chemicals).

**Rhodia, November 13, 2001.** Morrisville, PA Site RCRA Corrective Action Environmental Indicators Presentation.

**Rhodia, September 28, 1998.** Rhodia Presentation to PADEP Used Acid Morrisville, PA Site.

**Rhodia, November 13, 2001.** Groundwater Data Package.

**PADEP, August 14, 2001.** Letter from the DEP to Rhodia regarding the Non-Use Aquifer Designation.

**Stauffer, April 27, 1983.** Part B RCRA Permit Application.

**PADEP, December 15, 1986.** Letter from the DEP to Stauffer Regarding the Closure Plans.

**PADEP, September 30, 1987.** Hazardous Waste Inspection Report and Certificates of Closure.

**P.H. Roux & Associates, March 21, 1983.** Ground-Water Quality Assessment.

**Stauffer, November 8, 1985.** RCRA Pond Closure Plan.

**PADEP, October 2, 1989.** Letter from the DEP to Stauffer regarding Closure of Settling Pond as a Hazardous Waste Facility.

**Weston, August 1994.** Groundwater Monitoring Plan.

**PADEP, November 18, 1996.** Letter from the DEP to Rhodia Regarding the Groundwater Monitoring Plan.

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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” 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 “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 Rhodia, Inc. (formerly Rhône-Poulenc Basic Chemicals) facility, EPA ID # PAD002336410, located in Morrisville, 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."

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

Completed by    (signature) \_\_\_\_\_ Date 09/30/2004  
                          (print)        Linda A. Matyskiela  
                          (title)        Senior Project Manager

Supervisor        (signature) \_\_\_\_\_ Date 09/30/2004  
                          (print)        Paul Gotthold, Chief  
                          (title)        PA Operations Branch  
                          (EPA Region or State) EPA Region III

**Locations where References may be found:**

WCMD Records Center  
EPA Region III  
1650 Arch Street  
Philadelphia, PA 19103

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

(name)            Linda Matyskiela  
(phone #)        215-814-3420  
(e-mail)         matyskiela.linda@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.**