

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:** Mayco Oil & Chemical Company  
**Facility Address:** 475 Beaver Street, Bristol, PA 19007  
**Facility EPA ID #:** PAD 004 961 579

- I. 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 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).

**Current Human Exposures Under Control**  
**Environmental Indicator (EI) RCRIS code (CA725)**  
Page 2

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

X \_\_\_\_\_ 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.

\_\_\_\_\_ 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 Mayco Oil & Chemical Company (Mayco) operated a chemical and oil blending facility at 475 Beaver Street in Bristol Borough in Bucks County, Pennsylvania from 1968 through 1983. The facility consisted of several buildings, numerous storage tanks situated both inside and outside of the structures, a railroad spur, and a loading dock area.

A site layout map of the former Mayco facility was provided in the 1987 Preliminary Assessment, and it indicated the existence of 15 buildings on the property. The property was surrounded by a chain linked fence topped with barbed wire, with vehicle access provided through a locked gated entrance. The facility also had a railroad spur that connected to the main Conrail line east of the facility.

None of the original Mayco structures remain at the site. An indoor ice skating rink (Grundy Recreation Center) and its paved parking area currently occupy the property.

Mayco submitted a Part A Hazardous Waste Permit Application, but the uncertainty which existed between Mayco and the United States Environmental Protection Agency (USEPA) during this time, resulted in the application being submitted late. As a result, a consent agreement was issued to extend the deadline for Mayco to submit the Part A Hazardous Waste Permit Application.

<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.

During its operation, the Mayco facility had several incidents of small scale spills, primarily occurring during the transfer of material between on-site storage vessels and shipping transporters, both occurring at the railroad spur and loading dock areas. Available documentation indicate that these spills involved small quantities of material and were immediately contained and cleaned up.

One incident which was reported to the Pennsylvania Department of Environmental Protection (PADEP), was a 1979 fire in which water was used to extinguish the blaze by the local fire department became contaminated with facility materials. The water fell onto the ground and flowed to a nearby off-site storm drain, which eventually emptied into the Delaware River. PADEP sampled and analyzed the water entering the storm drain and determined that levels of contaminants were below allowable limits.

After Mayco ceased operations at the Bristol location in February 1983, the new owner, the Grundy Foundation (Grundy), began to develop the site as an indoor ice skating rink/recreation center. The construction of this new complex consisted of three phases: Phase I, the construction of Rink 1; Phase II, the construction of Rink 2; and Phase III, the construction of the parking area. Prior to and continuing during construction activities of the Grundy Recreation Center (ice skating rink), Grundy had several consultants investigate, evaluate, and report on the environmental condition of the property. Remedial efforts included razing the Mayco structures and removing identified contaminated soils. The remediation effort was coordinated with PADEP. The facility remediated one concrete pit containing dieldrin (a pesticide), contaminated sludge and two areas where black stained soils were visually identified during a December 13, 1996 PADEP Inspection. Each of these locations was sampled and analyzed for dieldrin, volatile organic compounds (VOCs), and metals as the chemicals of concern (COC). Dieldrin met the Residential Statewide Health Standard. Some VOCs and metals in a few soil samples slightly exceeded PADEP's non-residential Statewide Health Standards, but these exceedances do not statistically contribute to a significant risk to human health or the environment when evaluating the entire facility property. On November 18, 1997, the Bristol Borough Recreation Authority was given a release of liability in accordance with the PADEP Land Recycling and Environmental Remediation Standards (Act 2) for soil contaminated with dieldrin.

#### Groundwater

Four groundwater samples were collected from temporary well points labeled Well Point-1 (WP-1) through WP-4. Each well point was installed to 13 feet bgs with water encountered between four and six feet bgs. WP-1 was collected along the fence about ten feet from the pit which contained the dieldrin material. Samples for WP-2 and WP-3 were collected at soil locations C-1 and C-2, respectively. WP-4 was collected down gradient from WP-1. All of the WPs were analyzed for VOC, SVOCs, total cyanide, dieldrin, along with other targeted priority pollutant metals. WP-4 was analyzed for dieldrin only.

Groundwater, which is not used as a potable supply at the site, had a maximum concentration of 0.1 mg/L 1,1-dichloroethane, 0.036 mg/L arsenic, 0.09 mg/L chromium and 0.1 mg/L lead. There were no detections of dieldrin or SVOCs in the four groundwater samples collected.

The maximum concentration of dieldrin measured in any of the soil samples analyzed was 0.25 mg/kg. Six dieldrin soil samples measured below detection limits. Dieldrin was not detected in soil analyses or in any groundwater analyses.

Within ½ mile radius around the former Mayco facility, 100% of housing units reported they were served by a public water supply in the 1990 Census. The borough of Bristol is served by the Bristol Water and Sewer Department. According to the data from EPA's Safe Drinking Water Information System (SDWIS), the nearest public water supply to the former Mayco facility is located about 2200 feet southeast, and this is a surface water intake on the Delaware River. The nearest groundwater well used as a public supply is located about 1.8 miles west southwest of the former Mayco facility. There are no completed pathways from the groundwater under the former Mayco facility to neighboring drinking water supplies.

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

Page 3

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>"Contaminated Media"</b>	<b>Residents</b>	<b>Workers</b>	<b>Day-Care</b>	<b>Construction</b>	<b>Trespassers</b>	<b>Recreation</b>	<b>Food<sup>3</sup></b>
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):

---

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

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

Page 4

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):

---

<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.

**Current Human Exposures Under Control**  
**Environmental Indicator (EI) RCRIS code (CA725)**  
Page 5

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

**Current Human Exposures Under Control**  
**Environmental Indicator (EI) RCRIS code (CA725)**  
Page 6

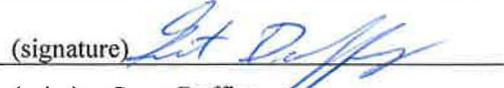
6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

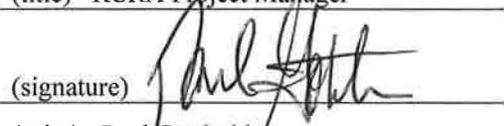
YE – Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the former Mayco Oil & Chemical facility, EPA ID # PAD 004 961 579, located at 475 Beaver Street, Bristol Borough, PA 19007, under current and reasonably expected conditions.

X \_\_\_\_\_ 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 8/22/14  
(print) Grant Dufficy  
(title) RCRA Project Manager

Supervisor: (signature)  Date 8/22/14  
(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 Southeast Regional Office and USEPA's Region III office.

\_\_\_\_\_

\_\_\_\_\_

Contact telephone and e-mail numbers:

(name) Grant Dufficy  
(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.**

