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:	Greene Tweed and Company
Facility Address:	320 Elm Avenue, North Wales, PA 19454
Facility EPA ID #:	PAD 075 504 795

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 togo 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 nonhuman (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 requiresthat 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).

Facility Background

The Greene Tweed and Company (Greene Tweed) facility began operations at its North Wales location in 1943 as a manufacturer of gasket, packing, and sealing devices. The 11.25 acre property contained two buildings during Greene Tweed's period of operations, which ended in 1987. A third building was constructed at the facility after Greene Tweed sold the property shortly after its operations were discontinued.

The only manufacturing process that generated hazardous waste at the facility was the coating tower operation. The coating process consisted of submerging a 40-inch wide belt of square woven cotton cloth into a rubber cement tank to completely coat the cloth. At the end of a production order, the rubber cement remaining in the tank was disposed. Additional waste was generated during cleanup of the coating equipment, using toluene.

Wastes were stored in the three drum storage areas at the site, all of which were removed from the facility when operations ceased in 1987. Green Tweed operated a #6 fuel oil boiler that was also removed from the facility when it was shut down. Machine parts cleaning was periodically required for proper maintenance activities The facility utilized a Varsol degreaser for this purpose. The Varsol tank required cleaning approximately once every two years and generated approximately 25-30 gallons of dirty Varsol.

Shortly after the facility was closed in July 1987, approximately 900 cubic yards of soil was excavated from a former underground storage tank (UST) location. The soil was contaminated with toluene and petroleum hydrocarbons. An additional 600 cubic yards of soil was later excavated. The excavated soils were stockpiled before being placed into an on-site bioremediation cell with Pennsylvania Department of Environmental Protection (PADEP) approval.

The site currently houses a variety of small businesses including LIP Auto Collision (auto body repair), White Enterprises (realty and roofing), and Falcon Environmental (manufacturer of water-based gel that fights odors). Alliance Graphics (printing company that uses soy-based inks) and IFH, Inc. (manufactures thermocouples) rent space from Shannon Enterprises, while Parts for Lifts, Inc. is a tenant of Falcon Environmental. LIP Collision indicated that waste paints and solvents are removed from the site on an as-needed basis by Safety Kleen. Falcon Environmental, Alliance Graphics, IFH, Shannon Enterprises, and Parts for Lifts generate no hazardous waste.

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)?

	Yes	No	?	Rationale/Key Contaminants
Groundwater		X		Source of potential contamination was excavated and bioremediated on-site.
Air (indoors)[2]		X		Contaminants not present at significant concentrations to suspect an indoor air problem.
Surface Soil (e.g., <2 ft)		X		Soil was excavated and bioremediated on-site
Surface Water		X		All sources have been removed. No potential for contaminated stormwater runoff to impact Wissahickon Creek.
Sediment		X		All sources have been removed. No potential for contaminated stormwater runoff to impact Wissahickon Creek sediments.
Subsurface Soil (e.g., >2 ft)		X		Soil was excavated and bioremediated on-site
Air (outdoors)		X		All operations at the facility were terminated and no air emission sources currently exist.

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):

See the following page for response to Question #2 (Rationale and Reference(s)).

[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 isa 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.

Answer to Question #2 - Rationale and Reference(s)
Human Exposures Under Control

Air

There is no record of complaints filed with PADEP regarding air emissions emanating from this facility. Due to the type of operations currently conducted at the site (realty, roofing contracting, thermocouple manufacture, auto body repair, odor fighting gel manufacture, lift parts sale, and printing), indoor and outdoor air are not suspected to be contaminated. The auto body repair shop mains a completely closed/vented paint booth for the painting of repaired vehicles. Workers observed painting vehicles during the EI site visit were wearing respiratory protection. The levels of petroleum-related contamination in the soils remaining within the bioremediation cell (described further in the Soil section below) are not suspected to contribute to an indoor air vapor intrusion risk to the on-site buildings or any off-site properties.

Soil

In April 1986, Greene Tweed excavated contaminated soil associated with two leaking underground storage tanks (USTs) including a 10,000-gallon tank containing No. 6 fuel oil and a 6,000-gallon storage tank containing toluene. Soil samples collected from the excavated soils contained concentrations of toluene ranging from 4.5 ppm to 1,700 ppm and concentrations of fuel oil ranging from 406 ppm to 63,500 ppm. The facility decided to bioremediate the contaminated soils by stockpiling them in three separate piles on the site property. Approximately 1,700 cubic yards of stockpiled soils were eventually deposited into a specially constructed lined containment cell adjacent to Building No. 2. PADEP required concentrations less than 50 µg/kg for toluene and less than 100 mg/kg TPH in order to authorize closure. Although the results of a few of the confirmation soil samples were slightly above these levels, a November 12, 1992 letter from PADEP stated the Department was satisfied with the levels attained. The stockpiled soils were backfilled into the bioremediation cell shortly thereafter, and remain in that location today.

Groundwater

Based on local topography, shallow groundwater is believed to flow to the west/southwest toward the Wissahickon Creek. The closest well is located 0.2 miles west of the site and is owned by the North Wales Water Authority. No private domestic wells are known to exist within three miles of the facility. Falcon Environmental utilizes an industrial well on-site. This well was last sampled in 1987 and was found to contain trace levels of zinc (0.163 mg/l) and phenolics (1.3 mg/l), neither of which exceeded EPA Region 3's tap water regional screening levels (RSLs). The highest concentration of toluene in soils remaining on site (contained in the bioremediation cell) was 0.47 mg/kg, which is less than EPA's risk-based soil screening level (SSL) for the protection of groundwater (0.76 mg/kg) for that contaminant. Similarly, the highest concentration of methyl ethyl ketone in soils contained in the bioremediation cell was 0.013 mg/kg which is two orders of magnitude below the 1.2 mg/kg SSL for the protection of groundwater.

Due to the fact that contaminated soil has been treated on site and placed into the bioremediation cell, no other sources of groundwater contamination have been documented or are suspected at the site, and no private wells are being used in the site vicinity, exposure to groundwater is not considered to be a threat to human health.

Surface Water and Sediment

Most stormwater runoff drains to the west towards the Wissahickon Creek approximately ½ mile from the site. The Wissahickon Creek is a major tributary to the Schuylkill River. Due to the distance from the site and the lack of documented releases, exposures to surface water and sediment are not expected to be of concern.

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)						
"Contaminated Media"	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food[3]
Groundwater							
Air (indoors)							
Soil (surface, e.g., <2 ft)							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft)							
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.

_____ 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):

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

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"** (i.e., potentially[4] " 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 justifyingwhy 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):

[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.

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):

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):

X 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 Greene Tweed & Company facility, EPA ID PAD 075 504 795 located at 320 Elm Avenue, North Wales, PA 19454 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) [signature] Date 9/30/14

(print) Andrew Clibanoff

(title) RCRA Project Manager

Supervisor: (signature) [signature] Date 9-30-14

(print) Paul Gotthold

(title) Associate Director, Office of PA Remediation

EPA Region III

Locations where References may be found:

All reference documents are appended to the Environmental Indicator Final Report which can be found at the PADEP's Southeastern Records Office (Conshohocken) or USEPA's Records Office (in Philadelphia).

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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.