DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: **Greene, Tweed & Co.**
Facility Address: **2075 Detwiler Road, Kulpsville, Pennsylvania 19443**
Facility EPA ID #: **PAD980555197**

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 #8 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, 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"**[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		See rational below.
Air (indoors)[2]		X		See rational below.
Surface Soil (e.g., <2 ft)		X		See rational below.
Surface Water		X		See rational below.
Sediment		X		See rational below.
Subsurf. Soil (e.g., >2 ft)		X		See rational below.
Air (outdoors)		X		See rational below.

☒ 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.

☐ 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):

Facility Background Information:

Greene, Tweed & Co. (Greene Tweed or Facility) is located at 2075 Detwiler Road in Kulpsville, Towamencin Township, Montgomery County, Pennsylvania. The Facility is bordered to the northwest by Delp Drive, the southwest by Detwiler Road, and to the southeast by Gehman Road. The Facility covers approximately 30 acres. Land use in the surrounding area includes commercial and residential properties.

Prior to 1971, the Facility property was utilized as farmland. Greene Tweed purchased the property in 1971 and began construction of the Facility buildings. Since 1971, Greene Tweed has been the sole owner and operator of the Facility. The Facility manufactures specialty seals, gaskets, and custom engineered plastic components for the aerospace, defense, pharmaceutical, and chemical industries. The Facility's main product lines currently include synthetic rubber, PEEK plastic, and plastics machining.

Footnotes:

[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 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.

RCRA Regulatory Status:

The Facility is subject to EPA's Corrective Action Program under the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, and the Hazardous and Solid Waste Amendments (HSWA) of 1984, 42 U.S.C. §§ 6901 et seq. (Corrective Action Program). The Corrective Action program is designed to ensure that certain facilities subject to RCRA have investigated and cleaned up any releases of hazardous waste and hazardous constituents that have occurred at their property. The Commonwealth of Pennsylvania (Commonwealth) is not authorized for the Corrective Action Program under Section 3006 of RCRA. Therefore, EPA retains primary authority in the Commonwealth for the Corrective Action Program.

On April 19, 2011, Michael Jr. Baker, Inc. (Baker) conducted an Environmental Indicator (EI) Inspection of Greene Tweed, on behalf of EPA. The findings of the EI Inspection are documented in a December 2011 EI Inspection Report for Greene, Tweed & Co., prepared by Baker. Information gathered during the EI Inspection identified the Facility as a Large Quantity Generator (LQG) of ignitable (D001) hazardous waste.

For additional information regarding the generation and management of hazardous waste by Greene Tweed, please refer to Section A of the December 2011 EI Inspection Report.

Solid Waste Management Units:

Summaries of historic and/or current Solid Waste Management Units (SWMUs) present at the Site as a result of past or present operations are provided in the following paragraphs and are described in further detail in Section B of the of the EI Inspection Report.

SWMU No. 1 – Former Hazardous Waste Storage Area: This unit began operation in 1984 and was located outside the northeast corner of the main building. Hazardous wastes, including Glydex (10% ammonia, 40% ethyl alcohol, 50% water), urethane, and laboratory wastes, were stored in this area in containers. This area also housed a 1,500-gallon aboveground storage tank (AST) used to store waste Glydex. The storage area was 21 by 21 feet concrete pad with a six-inch high curb. The pad area was fenced with a six-foot high chain-link fence with wooden fencing on the northern and eastern faces. In 2002, the footprint of the main building was expanded to the north and the hazardous waste storage area was relocated to the northwest side of the main building. The unit was demolished and the materials of construction were discarded. No known or documented releases have occurred from SWMU No. 1.

SWMU No. 2 – Former Methylene Chloride Waste Drum Area: Historically, methylene chloride was used to clean product supply hoses used in the Facility's urethane production process. Waste methylene chloride was collected in a 55-gallon drum located in the urethane production area. Once full, the drum was transferred to SWMU No.1 for off-site shipment. The Facility ceased production of urethane in the early 1990's; therefore, use of methylene chloride and its associated waste drum was discontinued. The dates of operation for this area are unknown. No known or documented releases have occurred from SWMU No. 2.

SWMU No. 3 – Current Hazardous Waste Storage Area: The Facility's current hazardous waste storage area is located on the northwest side of the main building and began operation in 2002. The area is 25 by 25-feet and consists of a concrete pad with secondary containment (i.e., concrete berm). A one-foot by one-foot concrete sump is located in the south corner. The concrete floor, curbing, and walls appeared to be epoxy coated and were in good condition. The storage area is under roof, fenced and locked. Containers of waste isopropanol are stored in this area, in addition to waste Glydex which is stored in a 1,500-gallon AST. No known or documented releases have occurred from SWMU No. 3.

SWMU No. 4 – Waste Hydraulic Oil/Coolant Storage Area: Located to the east of SWMU No. 3 is the Facility's waste hydraulic oil/coolant storage area. The storage area consists of a sloped 20 by 20-foot concrete pad with a six-inch concrete curb surrounding the back and sides. The storage area is under roof and surrounded by a six-foot high chain-link fence on all sides that is locked. No known or documented releases have occurred from SWMU No. 4.

Summary of Environmental History:

SWMU No. 1 – Former Hazardous Waste Storage Area Soil Sampling: During a 1992 PADEP inspection, the inspector observed a sheen on rain water that had accumulated in the containment area. Facility representatives stated that rain water is drained from the containment area directly to the ground surface. In addition, the inspector observed two large cracks in

the concrete pad of SWMU No. 2. Therefore, the inspector requested that soils surrounding and downgradient of the storage area should be sample and analyzed for any waste materials stored in this area. Four soil samples were collected and the results concluded that the soil adjacent to and downgradient of SWMU No. 1 had not been adversely impacted by rainwater runoff from the concrete pad and no further action was required.

Fuel Oil Underground Storage Tank (UST) Release: In February 2002, the Facility had a release of fuel oil following a refueling event of the Facility's 20,000-gallon UST containing No. 2 fuel oil and a 15,000-gallon UST containing No. 4 fuel oil. As a result, the Facility underwent a soil and groundwater investigation in accordance with the Pennsylvania Department of Environmental Protection's (PADEP) Land Recycling Program (Act 2). The Act 2 investigation specifically addressed the release of fuel oil from the two USTs which impacted two areas: the immediate area in the vicinity of the USTs, and a drainage swale located in a grassy area of the Facility located directly northwest of the stormwater retention pond. In May 2009, PADEP approved the Facility's Act 2 Final Report and stated that the Facility had demonstrated attainment of the residential Statewide Health Standard (SHS) for constituents of No. 2, No. 4 and No. 6 fuel oils for soil within the UST excavation and drainage swale, and for groundwater.

For additional information regarding the above investigations and remedial actions, please refer to Section B of the EI Inspection Report.

A review of all available records and discussions with Facility representatives during an April 2011 site visit, 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 Facility (i.e., site-wide)).

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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)

"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.)

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

[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.

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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 (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 Greene, Tweed & Co. facility, EPA ID # PAD980555197, located at 2075 Detwiler Road, Kulpsville, Pennsylvania 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 3/19/12
(print) Jeanna R. Henry
(title) Remedial Project Manager
Office of Pennsylvania Remediation

Supervisor (signature) _____ Date 3/20/12
(print) Paul Gotthold
(title) Associate Director
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Locations where References may be found:

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