

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater 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 the groundwater media, 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 "Migration of Contaminated Groundwater Under Control" EI

A positive "Migration of Contaminated Groundwater Under Control" EI determination ("YE" status code) indicates that the migration of "contaminated" groundwater has stabilized, and that monitoring will be conducted to confirm that contaminated groundwater remains within the original "area of contaminated groundwater" (for all groundwater "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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated ground water and contaminants within groundwater (e.g., non-aqueous phase liquids or NAPLs). Achieving this EI does not substitute for achieving other stabilization or final remedy requirements and expectations associated with sources of contamination and the need to restore, wherever practicable, contaminated groundwater to be suitable for its designated current and future uses.

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. Is **groundwater** known or reasonably suspected to be “**contaminated**”¹ above appropriately protective “levels” (i.e., applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action, anywhere at, or from, the facility?

- If yes - continue after identifying key contaminants, citing appropriate “levels,” and referencing supporting documentation.
- If no - skip to #8 and enter “YE” status code, after citing appropriate “levels,” and referencing supporting documentation to demonstrate that groundwater is not “contaminated.”
- If unknown - skip to #8 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.

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.

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 appropriate “levels” (appropriate for the protection of the groundwater resource and its beneficial uses).

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.

Groundwater:

Based on a review of all available records and discussions with Facility representatives during an April 2011 site visit, EPA has determined that groundwater beneath the Facility is not known or reasonably suspected to be contaminated above appropriately protective levels. This determination is supported by past investigations which have shown that groundwater beneath the Facility is not contaminated with constituents specific to documented releases that have occurred at the Facility.

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3. Has the **migration** of contaminated groundwater **stabilized** (such that contaminated groundwater is expected to remain within “existing area of contaminated groundwater”² as defined by the monitoring locations designated at the time of this determination)?

- If yes - continue, after presenting or referencing the physical evidence (e.g., groundwater sampling/measurement/migration barrier data) and rationale why contaminated groundwater is expected to remain within the (horizontal or vertical) dimensions of the “existing area of groundwater contamination”².
- If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the “existing area of groundwater contamination”²) – skip to #8 and enter “NO” status code, after providing an explanation.
- If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

² “existing area of contaminated groundwater” is an area (with horizontal and vertical dimensions) that has been verifiably demonstrated to contain all relevant groundwater contamination for this determination, and is defined by designated (monitoring) locations proximate to the outer perimeter of “contamination” that can and will be sampled/tested in the future to physically verify that all “contaminated” groundwater remains within this area, and that the further migration of “contaminated” groundwater is not occurring. Reasonable allowances in the proximity of the monitoring locations are permissible to incorporate formal remedy decisions (i.e., including public participation) allowing a limited area for natural attenuation.

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4. Does “contaminated” groundwater **discharge** into **surface water** bodies?

- If yes - continue after identifying potentially affected surface water bodies.
- If no - skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation and/or referencing documentation supporting that groundwater “contamination” does not enter surface water bodies.
- If unknown - skip to #8 and enter “IN” status code.

Rationale and Reference(s):

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5. Is the **discharge** of “contaminated” groundwater into surface water likely to be “**insignificant**” (i.e., the maximum concentration³ of each contaminant discharging into surface water is less than 10 times their appropriate groundwater “level,” and there are no other conditions (e.g., the nature, and number, of discharging contaminants, or environmental setting), which significantly increase the potential for unacceptable impacts to surface water, sediments, or eco-systems at these concentrations)?
- If yes - skip to #7 (and enter “YE” status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentration³ of key contaminants discharged above their groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) provide a statement of professional judgement/explanation (or reference documentation) supporting that the discharge of groundwater contaminants into the surface water is not anticipated to have unacceptable impacts to the receiving surface water, sediments, or eco-system.
 - If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ of each contaminant discharged above its groundwater “level,” the value of the appropriate “level(s),” and if there is evidence that the concentrations are increasing; and 2) for any contaminants discharging into surface water in concentrations³ greater than 100 times their appropriate groundwater “levels,” the estimated total amount (mass in kg/yr) of each of these contaminants that are being discharged (loaded) into the surface water body (at the time of the determination), and identify if there is evidence that the amount of discharging contaminants is increasing.
 - If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

³ As measured in groundwater prior to entry to the groundwater-surface water/sediment interaction (e.g., hyporheic) zone.

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6. Can the **discharge** of “contaminated” groundwater into surface water be shown to be “**currently acceptable**” (i.e., not cause impacts to surface water, sediments or eco-systems that should not be allowed to continue until a final remedy decision can be made and implemented⁴)?
- If yes - continue after either: 1) identifying the Final Remedy decision incorporating these conditions, or other site-specific criteria (developed for the protection of the site’s surface water, sediments, and eco-systems), and referencing supporting documentation demonstrating that these criteria are not exceeded by the discharging groundwater; OR 2) providing or referencing an interim-assessment⁵, appropriate to the potential for impact that shows the discharge of groundwater contaminants into the surface water is (in the opinion of a trained specialists, including ecologist) adequately protective of receiving surface water, sediments, and eco-systems, until such time when a full assessment and final remedy decision can be made. Factors which should be considered in the interim-assessment (where appropriate to help identify the impact associated with discharging groundwater) include: surface water body size, flow, use/classification/habitats and contaminant loading limits, other sources of surface water/sediment contamination, surface water and sediment sample results and comparisons to available and appropriate surface water and sediment “levels,” as well as any other factors, such as effects on ecological receptors (e.g., via bio-assays/benthic surveys or site-specific ecological Risk Assessments), that the overseeing regulatory agency would deem appropriate for making the EI determination.
 - If no - (the discharge of “contaminated” groundwater can not be shown to be “**currently acceptable**”) - skip to #8 and enter “NO” status code, after documenting the currently unacceptable impacts to the surface water body, sediments, and/or eco-systems.
 - If unknown - skip to 8 and enter “IN” status code.

Rationale and Reference(s):

⁴ Note, because areas of inflowing groundwater can be critical habitats (e.g., nurseries or thermal refugia) for many species, appropriate specialist (e.g., ecologist) should be included in management decisions that could eliminate these areas by significantly altering or reversing groundwater flow pathways near surface water bodies.

⁵ The understanding of the impacts of contaminated groundwater discharges into surface water bodies is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration to be reasonably certain that discharges are not causing currently unacceptable impacts to the surface waters, sediments or eco-systems.

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7. Will groundwater **monitoring** / measurement data (and surface water/sediment/ecological data, as necessary) be collected in the future to verify that contaminated groundwater has remained within the horizontal (or vertical, as necessary) dimensions of the “existing area of contaminated groundwater?”
- If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating horizontally (or vertically, as necessary) beyond the “existing area of groundwater contamination.”
 - If no - enter “NO” status code in #8.
 - If unknown - enter “IN” status code in #8.

Rationale and Reference(s):

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8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), 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, "Migration of Contaminated Groundwater Under Control" has been verified. Based on a review of the information contained in this EI determination, it has been determined that the "Migration of Contaminated Groundwater" is "Under Control" at the Greene, Tweed & Co. facility, EPA ID No. PAD980555197, located at 2075 Detwiler Road, Kulpsville, Pennsylvania 19443. This determination will be re-evaluated when the Agency becomes aware of significant changes at the facility.
- NO - Unacceptable migration of contaminated groundwater is observed or expected.
- 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
Office of Pennsylvania Remediation
EPA Region 3

Locations where References may be found:

US EPA Region III
Land & Chemicals Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers:

(name) Jeanna R. Henry
(phone #) 215-814-2820
(e-mail) henry.jeannar@epa.gov