

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA750) Migration of Contaminated Groundwater Under Control

Facility Name: Westlake Plastics Company, Inc.
Facility Address: 490 Lenni Road, Lenni, Pennsylvania 19052
Facility EPA ID #: PAD002346773

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):

2.1 Facility Background Information:

Westlake Plastics Company, Inc. (Westlake or Facility) is located at 490 Lenni Road in Lenni, Delaware County, Pennsylvania. The Facility is composed of two separate properties (referred to as Section No. 1 and Section No. 2), which are separated by Lenni Road, Chester Creek, and a privately owned parcel of land. Section No. 1, the northernmost section, is located in Chester Heights Borough and consists of three parcels of land totaling approximately 8.6 acres. Section No. 1 is bordered on the south by Lenni Road, on the east by Chester Creek, and the west and north by wooded areas. Section No. 2 is located in Middletown Township and consists of two parcels of land totaling approximately 12 acres. Section No. 2 is bordered on the north by Lenni Road, on the west and south by Chester Creek, and on the east by a partially wooded/field area. The area surrounding the Facility is primarily a wooded residential area. A small number of commercial and industrial enterprises are scattered throughout, with the majority located east and south of the Facility.

Westlake was founded in 1951 and purchased the properties that comprise Section No. 1 and Section No. 2 in 1953. Ownership of the property prior to 1953 is unknown; however, the original Facility buildings were constructed in the mid-1850s and were used as a woolen mill. Westlake is a subsidiary of Pacific World Corporation and manufactures thermoplastic and thermoset plastic products by extrusion and compression-molding methods. The products are fashioned by melting plastic pellets (raw material) and forcing the liquid plastic into molds and dies to form the desired shape, such as rods, slabs, sheets, and film. The extrusion process is performed at Section No. 1; Section No. 2 is utilized by the Facility to receive deliveries, store extruded materials prior to annealing, anneal extruded material in hot air ovens, fabricate extruded materials, and store finished products.

Historically, newly formed plastics were annealed in a bath of high temperature lubricating oil (annealing oil) or diethylene glycol to prevent brittleness and remove internal stress created during the extrusion process. Following the annealing process, the plastics were washed with mineral spirits to remove residual oil, generating a mixture of spent annealing oil and mineral spirits (i.e., petroleum naphtha) waste stream. The spent annealing oil/mineral spirit mixture was stored in 55-gallon drums and managed as an ignitable (EPA Hazardous Waste Code D001) characteristic hazardous waste. The spent annealing oil/mineral spirit mixture was reclaimed on-site through distillation to recover the mineral spirits for reuse in the Facility's manufacturing operations. The waste annealing oil and the still bottoms generated by the distillation unit were determined to be non-hazardous and were shipped off-site for disposal.

In 1994, large hot air ovens were installed in Section No. 2 to replace the annealing baths. As a result, the Facility no longer generates the spent annealing oil/mineral solvent hazardous waste stream.

2.2 RCRA Regulatory Status:

Due to Westlake's past manufacturing operations, the Facility is subject to EPA's Corrective Action Program under the Solid Waste Disposal Act (SWDA), 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

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).

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 February 29, 2012, Michael Jr. Baker, Inc. (Baker) conducted an Environmental Indicator (EI) Inspection of Westlake, on behalf of EPA. An EPA representative was present during the EI Inspection. The findings of the EI Inspection are documented in an August 2012 EI Inspection Report for Westlake, prepared by Baker. Information gathered during the EI Inspection indicates that the Facility is no longer a generator of hazardous waste.

For additional information regarding historical and current generation and management of hazardous waste at the Facility, please refer to Section A – Permit and Regulatory Action History of the August 2012 EI Inspection Report.

2.3 Solid Waste Management Units and Areas of Concern:

Summaries of the Facility's former Solid Waste Management Units (SWMUs) and Areas of Concern (AOCs), identified as a result of past operations, are provided below. The SWMUs were identified during a March 8, 1990 Environmental Priorities Initiative (EPI) Preliminary Assessment (PA) conducted by NUS Corporation (NUS). The PA was conducted under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) to evaluate the potential for a release of hazardous substances from the Site. On August 8, 1990, NUS recommended no further action (NFA) for the Site under CERCLA.

Further details regarding the SWMUs and AOCs may be found in Section B of the August 2012 EI Inspection Report.

SWMU 1 – Former New Product/Raw Material/Waste Drum Storage Area

The former drum storage area was located near the southeastern perimeter of Section No. 2, along Chester Creek. The area consists of a concrete containment receptacle that is approximately 30 feet long, 5 feet wide and 1.5 feet high. Materials stored in this area included annealing oil, methanol (used as an anti-freeze agent in Facility's non-contact cooling water system; discontinued in mid-1990's), diethylene glycol, and mineral spirits. SWMU 1 was in operation between 1985 and 1999. No spills and/or releases have been reported or documented for this unit and no stained soils were observed by NUS during the 1990 PA.

SWMU 2 – Former Used Annealing Oil Drum Storage Area

The former used annealing oil drum storage area was located on the southeast end of the Section No. 1 building, east of the water cooling area containment structure. The unit was consisted of an uncovered concrete pad with a cinder-block berm along a majority of its perimeter and it was surrounded by an eight-foot high chain-link fence with a locked gate. The Facility used this area to store 55-gallon drums of waste annealing oil generated by the Facility's on-site distillation of spent mineral spirits/annealing oil mixtures. SWMU 2 was in operation prior to 1980 and remained active until the mid-1990's. During the 1990 NUS site visit, stained soils were observed near the entrance gate where a section of the cinder-block berm was missing. The unit was empty and no signs of releases or spills were evident at the time of the February 2012 EI Inspection.

SWMU 3 – Former Distilling/Annealing Rooms

The former annealing room was located inside of the south end of the Section No. 1 building. This room housed several above-ground annealing oil tanks (3,000-gallon, 3/32-inch thick steel walled tanks) and the diethylene glycol tank. The floor was constructed of concrete and one blind concrete trench was located near the annealing tanks that extended to the east. On the east end of the room were two doorways that led to the distillation room. A nine-inch high concrete berm and six-inch high retractable dam berm (dike) were installed at the doorways. The floor drain was blocked off near the dike to prevent oil spillage from migrating beyond the annealing room. Spills of annealing oil were directed into the trench and vacuumed out into drums. Wastes managed in the annealing room included 55-gallon drums of used annealing oil and used annealing oil/mineral spirit mixtures.

The distillation room was located in a separate room to the east of the annealing room and consisted of a concrete floor and cinder-block walls. The distillation unit was situated directly on the concrete floor. No berms were located in the doorway leading to the distillation unit, and no floor drains were observed in the distillation room. Operation of the distillation room was initiated some time before 1985 and ceased operation in the mid-1990's. No releases were reported or documented for SWMU 3; however, during the 1990 NUS site visit, the floor near the distillation unit and the annealing tanks was reported to be heavily coated with oil.

The former annealing room currently houses one extruder that is equipped with a remote self-sustaining non-contact cooling water system. The room was clean, and the floor trench was covered with steel during the February 2012 EI Inspection. The former distillation room is currently used for storage. The area was clean and the cinder-block wall enclosing the room had been removed. No signs of releases or spills were evident from SWMU 3 at the time of the February 2012 EI Inspection.

SWMU 4 – Former Empty Drum Storage Area

The former empty drum storage area was located outside the Section No. 2 warehouse, west of the new product/raw material drums storage area (SWMU 1). Empty product drums (e.g., annealing oil, mineral spirits) were stored on wooden pallets on the gravel/dirt ground surface and were either returned to the supplier or used by the Facility for non-liquid material storage. Surface run-off from this unit is to the east, toward Chester Creek. No releases were reported or documented for SWMU 4; however, soil staining was observed by NUS during the 1990 site visit. It is unknown when SWMU 4 began operation. This unit is not currently being used for storage.

AOC 1 – Fuel Oil Underground Storage Tank

One 8,000-gallon steel underground storage tank (UST) containing No. 2 fuel oil was located at Section 1 to heat the building. The UST was located in the parking lot east of the former used annealing drum storage area (SWMU 2). Due to the close proximity of high tension transformers, the Facility cleaned and closed the UST in place in 1998 and changed the fuel source for the Facility to natural gas.

In October 1998, GAC Associates, Inc. (GAC) was contracted to collect three soil samples from directly beneath the UST (0 to 1 foot interval) along the centerline of the tank. The samples were analyzed for heating oil constituents (benzene, toluene, ethylbenzene, cumene, naphthalene, fluorine, and phenanthrene). Naphthalene was detected in two soil samples (Sample S1 @ 700 ug/kg; Sample S3 @ 150 ug/kg) below the Pennsylvania Department of Environmental Protection's (PADEP) action level of 8,000 ug/kg. None of the other parameters analyzed were detected above the practical quantitation limits (PQL).

AOC 2 – Section No. 2 Warehouse Drum Storage Area

During a March 28, 1984 industrial waste inspection by PADEP, drums of raw materials, waste mineral spirits, and waste annealing oil were being improperly stored behind the warehouse on Section No. 2. PADEP issued the Facility a Notice of Violation (NOV) on April 5, 1984. The NOV recommended that the drum storage area be provided with an impermeable pad and dike, or the drums of material should be moved to a storage area inside of the building.

PADEP conducted a follow up inspection on December 18, 1984 and noted that drums of raw and waste materials were still being improperly stored behind the warehouse on Section No. 2. PADEP issued the Facility a NOV for this violation on January 7, 1985 stating that the drums must be stored on an impervious and adequately sized pad equipped with secondary containment. PADEP conducted an industrial waste inspection of the Facility on August 29, 1985 which revealed the drum storage area containment structure had been constructed; however, it was not being used. Drums of material were still being stored in an uncontained area adjacent to the containment structure.

2.4 Groundwater:

Groundwater at the Site is not known or reasonably suspected to be contaminated based on a review of all available information for the Site. There have been no reportable releases and no instances or evidence of soil or groundwater contamination. In the event of a spill, the majority of the Site is covered with impermeable surfaces, such as, concrete slabs and asphalt paving which would prevent a release into the environment.

Drinking water is provided to the Facility and surrounding area by Aqua Pennsylvania, Inc. (Aqua) through its Main Division (PWSID#: PA1460073). According to Aqua's 2011 Water Quality Report, water for the Main Division comes from seven surface water sources and a number of ground water sites (wells). The seven surface water sources include Chester, Ridley, Crum, Pickering, Perkiomen, and Neshaminy creeks, and the Schuylkill River. Private drinking water wells are prohibited in accordance with the Middletown Township Code, Chapter 242, Article I, Section 242-1., which provides that all property owners shall connect with and use the water lines provided by the Middletown Township.

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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 concentration 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 concentration 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?"

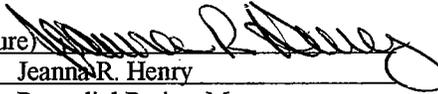
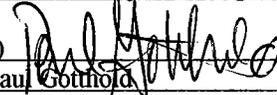
- If yes - continue after providing or citing documentation for planned activities or future sampling/measurement events. Specifically identify the well/measurement locations which will be tested in the future to verify the expectation (identified in #3) that groundwater contamination will not be migrating 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 Westlake Plastics Company, Inc. Facility, EPA ID No. PAD002346773, located at 490 Lenni Road, Lenni, Pennsylvania 19052. 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	<u>(signature)</u>  <u>(print)</u> Jeanna R. Henry <u>(title)</u> Remedial Project Manager	Date <u>3/25/13</u>
Supervisor	<u>(signature)</u>  <u>(print)</u> Paul Gotthold <u>(title)</u> Associate Director <u>Office of Pennsylvania Remediation</u> <u>EPA Region III</u>	Date <u>3/26/13</u>

Locations where References may be found:

US EPA Region III
Land & Chemicals Division
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