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

Facility Name:	Polymer Products Co., Inc.
Facility Address:	100 Station Avenue, Stockertown, Pennsylvania 18083
Facility EPA ID #:	PAD #000798454

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 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 Finalremedies 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 rationale below
Air (indoors)[2]		X		See rationale below
Surface Soil (e.g., <2 ft)		X		See rationale below
Surface Water		X		See rationale below
Sediment		X		See rationale below
Subsurface Soil (e.g., >2 ft)		X		See rationale below
Air (outdoors)		X		See rationale 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.

The Polymer Products Facility is situated on approximately 11 acres of land located in Stockertown, Northampton County, Pennsylvania. To the east of the Facility is a grass field followed by Little Bushkill Creek and residential development. South of the Facility is a grass field followed by a wastewatertreatment plant operated by Stockertown Borough, and an automobile junk yard. Along the western boundary of the property is the Lehigh Valley Railroad tracks followed by Bushkill Street, which is lined with a residential development and light industrial facilities. Further to the west is an active limestone quarry. The property is bordered to the north by a residential neighborhood. The Site is fenced and access is limited.

According to the Northampton County property records website, the property was developed in 1937. Structures present at that time included two sets of railroad tracks, a commercial detached masonry garage, a commercial carport, two steel pressure tanks with a paved parking lot and a chain link fence. The Site activities and ownership in 1937 is unknown.

Prior to 1974, the Facility was owned by Chemtron, a manufacturer of plastic products, which was headquartered in Chicago, Illinois. Not much is known about Chemtron except that site activities included utilization of a nitro building.

The Site was purchased by PPG Industries, Inc. in 1974 and was used for the production of fire-retardant concentrates and compounds, which were pelletized for resale. The flame retardant pellets were mainly used for cabinetry needs. This Facility also pelletized a non-dust form of pure antimony concentrate for resale. From 1974 to 1984, colorant was used

[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.

in the production process. Prior to 1984, the Facility was involved in transferring liquid phosgene from 1-ton cylinders to 150-pound cylinders for distribution. Phosgene remaining in the vapor space of the cylinders was vented to an ammonia scrubber, where it was neutralized, creating a build-up of ammonium chloride. Blowdown was directed to an on-Site cooling pond. The cooling pond was also used for recirculation of cooling water generated by the Facility. The start-up date for the pond is unknown. The closing date was December 1984.

Located north of the production building is an enclosed area that contains the former main dust collector (currently not operating), small propane tanks used for the Facility's forklifts, a trash compactor, and empty raw material drums. South of the production building is the wastewater collection system, which consists of a 12,500-gallon collection tank and a cooling tower, and three silos used to store raw pelletized material used during the production process. South of the maintenance building is a concrete pad that is the only remaining part of the former phosgene treatment building, where previously liquid phosgene was transferred from 1-ton cylinders into 150-pound cylinders for distribution. This building was later used for storage following the termination of the phosgene treatment process. A former cooling pond was located south of the former phosgene treatment building in a grass field. The pond has been filled and seeded.

The Facility currently specializes in the design, development, and production of plastic additive masterbatches and flame retardant compounds. An additive masterbatch is a concentrate containing active ingredients that produce specific performance benefits in either the manufacturing process or the end product. Products produced at the Facility include flame retardant masterbatches, stabilizer masterbatches, static dissipative masterbatches, ignition resistant styrenics, flame retardant polyolefins, and specialty masterbatches and compounds. These products are utilized in a broad range of applications.

Groundwater:

There has been limited hydrogeologic investigation activities conducted at the Site. However, based on local topography and the three temporary groundwater monitoring points installed by an Environmental subcontractor in January 2001, the groundwater flow direction beneath the Facility appears to be southeast toward Little Bushkill Creek.

Pennsylvania Department of Environmental Protection (PADEP) conducted an inspection at the Facility in September 1983 and reported the presence of a cooling pond on the southeastern portion of the property. PADEP was concerned that the industrial wastes contained in the pond was leaching to groundwater from the bottom in violation of the Pennsylvania Clean Streams Law (Section 307). The Facility was instructed either to get a permit for the pond or eliminate use of the pond. The Facility choose to close the cooling pond and replaced it with a cooling tower and water tank. The pond reportedly was drained in November 1984, and soil and groundwater samples were collected. Analytical results for the pond water or soil samples were not located in PADEP, USEPA, or the Facility files. EPA may require confirmatory groundwater sampling in the future, to adequately evaluate impacts to groundwater from the former cooling pond.

Analytical results for a water sample collected by the Facility from the laboratory vault (SWMU #6) indicate the presence of antimony, chromium, mercury, nickel,silver, toluene, and bis(2-ethylhexl) phthalate above the PADEP Residential Medium Specific Concentrations (MSCs), and iron above the Secondary Maximum Containment Levels (SMCL). Although there is no indication of a groundwater release from the vault, the potential for release exists, and confirmatory groundwater sampling may be required, as the original was misplaced by all parties involved.

Groundwater samples collected by a Facility contractor in January 2001 indicated the presence of 2-butanone (MEK) at 21 micro grams per liter (ug/l) at temporary groundwater monitoring location TW-1, below the PADEP Residential Groundwater MSC. In addition, zinc was identified in groundwater samples collected at TW-1 (86 ug/L) and TW-2 (73 ug/L), below the PADEP Residential Groundwater MSC. No other constituents analyzed for were detected in the groundwater samples collected from these two temporary monitoring points.

Review of permit information on the PADEP eFACTS website indicates a permit for an active on-site septic system. However, site personnel indicated during the site visit that wastewater generated onsite is held in a polypropylene above ground storage tank (AST) (above ground storage tank) (SWMU #7,), which is pumped twice a month by Earthcare and transported to the Stockertown Municipal Wastewater Treatment Facility. The Facility does not hold a National Pollutant Discharge Elimination System (NPDES) permit. SWMU #7 does not have a secondary containment system.

Indoor Air:

Exposure to on-Site workers via the indoor air pathway can be attributed to regular plant operations due to large quantities of dust generated during the manufacturing process. This exposure is controlled by the air permits issued through PADEP and compliance with Occupational Safety and Health Administration (OSHA) regulations. Facility documentation of air permits and OSHA requirements was not reviewed as part of the scope of the EI Inspection.

To evaluate other potential risks to indoor air quality at the Site, the identified SWMUs, the non-RCRA identified sources, and the results of soil and groundwater samples collected during Polymer Product's January 2001 Phase II investigation were evaluated. (Reference Polymer Products January 2001 Phase II investigation and PADEP's Environmental Indicator Inspection Report, October 2009). All of these former source areas, except the former cooling pond (SWMU #9), are believed to have been located within 100 feet of on-Site occupiable structures. Based on this evaluation, the following observations were made:

- Surface soil samples collected by an Environmental contractor in the vicinity of the laboratory vault (SWMU #6) and the former phosgene treatment building (SWMU #8) indicate the presence of methylene chloride, bis(2-ethylhexl)phthalate, di-n-butyl phthalate, and di-n-octyl phthalate at concentrations below their respective PADEP Residential MSCs (soil samples B-1, B-2, and B-3).

- A sample of water collected from the laboratory vault (SWMU #6) in February 1990 indicated the presence of toluene and bis(2-ethylhexyl)phthalate above PADEP Residential Groundwater MSCs. The concentration of toluene did not exceed the USEPA-PA Default Residential or Non-Residential Volatilization to Indoor Air Screen Values listed in the PADEP VI TGM. Screening values are not listed in the VI TGM for bis(2-ethylhexyl)phthalate.

- UST post-tank removal contamination was observed in the excavations, and soil samples were collected from the impacted areas. URS was unable to locate any post-excavation soil sample analytical data; however, soil samples were collected by an Environmental contractor in January 2001 at the four former tank locations (B-6, B-7, B-8, and B-9. Samples were collected at the interface between fill materials and native soil. No VOCs or SVOCs were detected in the four samples, except for methylene chloride which was detected at 0.011 mg/kg in sample B-9, below the PADEP Residential Soil MSC of 0.5 mg/kg.

- Concentrations of acetone, 2-butanone (MEK), carbon disulfide, methylene chloride, and bis(2-ethylhexyl)phthalate were detected below their respective PADEP Residential Soil MSCs in soil samples collected from borings B-4 and B-5 (stormwater drainage areas) and the temporary groundwater monitoring points (TW-1, TW-2, and TW-3). A concentration of 2-butanone (MEK) was also detected in the groundwater sample collected from temporary groundwater monitoring point TW-1. The detected concentration was below the PADEP Residential Groundwater MSC.

Based on this information, it appears that the indoor air pathway is incomplete at this time

Soils [Surface (0 to 2 feet bgs) and Subsurface (>2 feet bgs)]:

In 2001, the Facility performed a Phase II ESA to provide a general screening of soil and groundwater quality at the Site. The environmental contractor drilled nine soil borings and three temporary groundwater sampling points on December 13, 2000 from areas of the Facility where the greatest likelihood of a release of contaminants to the environment may have occurred. These locations included the following:

- The former phosgene process building;

- The laboratory vault sump;

- Two stormwater drainage areas;

- The location of two former heating oil underground storage tanks (USTs); and
- The location of one former diesel fuel UST.

One soil sample was collected from each of the nine soil borings (samples B-1 through B-9). Three additional soil samples were collected during installation of the three temporary groundwater monitoring points (TW-1 through TW-3). Information regarding the depth and location of each soil sample is presented in the following table.

Sample Identification	Sample Location	Sample Depth (feet below ground surface)	Comment
B-1	Former phosgene process building	0 to 2	
B-2	Former phosgene process building	0 to 2	
B-3	Underground laboratory vault sump	7.5 to 8	one foot below base of vault
B-4	Stormwater drainage area	0 to 2	
B-5	Stormwater drainage area	0 to 2	
B-6	Former heating oil USTs	5 to 6	contact between fill and natural soil, slight staining observed
B-7	Former heating oil USTs	4 to 5	contact between fill and natural soil
B-8	Former heating oil USTs	11 to 12	contact between fill and natural soil

(table continued on next page)

Sample Identification	Sample Location	Sample Depth (feet below ground surface)	Comment
B-9	Former diesel fuel UST	4 to 5	contact between fill and natural soil
TW-1	Background groundwater location	8.5 to 9	Slight staining observed
TW-2	Downgradient groundwater location	10 to 10.5	Unsaturated zone immediately above water table
TW-3	Downgradient groundwater location	20.5 to 21	Unsaturated zone above bedrock (groundwater not encountered in boring)

The soil samples were analyzed for VOCs by USEPA Method 8260B, SVOCs by USEPA Method 8270C, and antimony and zinc by USEPA Method 6010B. The analytical results of the soil samples indicate the presence of acetone, 2-butanone (MEK), carbon disulfide, methylene chloride, bis(2-ethylhexyl) phthalate, di-n-butyl phthalate, di-n-octyl phthalate, antimony, and zinc. The concentrations of the detected constituents did not exceed the PADEP Residential Soil MSCs.

Based on this information, Site soils are not impacted above appropriate regulatory standards, at the areas investigated by the Facility contractor in January 2001

Sediment:

The nearest surface water body is Little Bushkill Creek, which is located approximately 400 feet east of the Facility. Little Bushkill Creek is a perennial stream, which flows to the south and converges with Bushkill Creek approximately 0.4 miles east of the southeast of the property. Little Bushkill Creek is a high quality cold water fishery as defined by the Pennsylvania Clean Streams Law. These standards are based upon aquatic life, fish consumption, recreational use, and potable water supply criteria.

Sediment samples have not been collected at the Site nor were any sediment sampling information located in either USEPA or PADEP files; therefore, the condition of sediments in the Little Bushkill Creek located along the eastern boundary of the Site is unknown. There is no reason to suspect this media has/had been affected by Site operations as there have been no documented releases to this surface water body.

Surface Water:

The FEMA Floodplain Map indicates that the southern portion of the Facility is located within the 500-year flood plain of Little Bushkill Creek. Review of permit information on the PADEP eFACTS website indicates a permit for an active on-site septic system. However, site personnel indicated during the site visit that wastewater generated onsite is held in a polypropylene AST (SWMU #7) which is pumped twice a month by Earthcare and transported to the Stockertown Municipal Wastewater Treatment Facility. SWMU #7 does not have a secondary containment system. The Facility does not hold a NPDES permit, and there are no known discharges to Little Bushkill Creek from the Facility.

The potential for indirect discharge of Site contaminants to surface water is possible via the groundwater flow pathway. The groundwater flow gradient for the Site has not been fully established due to limited data, but appears to be to the southeast toward Little Bushkill Creek. Currently, there is insufficient groundwater quality information from potential, yet uninvestigated, on-Site sources to determine if groundwater is impacted, and if this groundwater may be discharging to Little Bushkill Creek.

Outdoor Air:

The Facility holds Operating Permit 48-00066 issued by PADEP Bureau of Air Quality for emissions. The Facility was issued seven NOVs by PADEP between 2000 and 2005 for complaints of malodors from the neighboring residents. As a result, the Facility installed the first stage of a two-stage scrubber system on June 6, 2005. The installation of the first stage of the scrubber system reduced the odors, but did not completely eliminate them; thus, the installation of the second stage scrubber was requested by PADEP. According to Facility personnel, with the installation of this new system, no complaints have been issued against the Facility regarding malodors. The PADEP eFACTS website indicates a reduction in NOVs related to malodors. According to PADEP eFACTS, the most recent full inspection was completed on April 30, 2017. Based on this database, no violations were noted from the evaluation.

EPA does not believe there are any completed pathways or concerns for Human Health exposures at the Polymer Products Facility at this time. However, due to the missing confirmatory data from the cooling pond EPA may require confirmatory groundwater sampling in the future, to adequately evaluate impacts to groundwater and groundwater receptors from the former cooling pond.

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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	Daycare	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. Strikeout 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):

No rationale warranted.

[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"** (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 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):

No rationale warranted.

[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 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):

No rationale warranted.

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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 (and attach appropriate supporting documentation as well as a map of the facility):

X YE – Yes, "Current Human Exposures Under Control" has been verified.

____ NO – "Current Human Exposures" are NOT "Under Control."

____ IN – More information is needed to make a determination.

Completed by: (signature) [signature] Date 9/12/18

(print) Grant Dufficy GRANT DUFFICY

(title) RCRA Project Manager

Supervisor: (signature) [signature] Date 9-12-18

(print) Paul Gotthold

(title) Assoc. Director Office of PA Remediation

(EPA Region or State) EPA Region III

Locations where References may be found:

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

PADEP North East Regional Office
2 Public Square
Wilkes-Barre, PA 18701-1915

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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.