

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater 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 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?

 X 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 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 "Migration of Contaminated Groundwater Under Control" EI pertains ONLY to the physical migration (i.e., further spread) of contaminated groundwater 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 risk-based "levels" (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.
 X 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 (for any media)– skip to #8 and enter "IN" status code.

Rationale and Reference(s):

The Polymer Products Facility is situated on approximately 11 acres of land 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 wastewater treatment 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 prior to 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 the former Chemtron operation 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 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.

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 exfiltrating to groundwater from the bottom in violation of the Pennsylvania Clean Streams Laws. The Facility was advised either to get a permit for the pond or eliminate use of the pond. The Facility ultimately closed the cooling pond

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).

and replaced it with a cooling tower and water tank. The pond reportedly was drained in November 1984, and soil samples were collected. Analytical results for the pond water or soil samples were not located in PADEP or USEPA files.

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.

In September 1994, the Polymer Products company, a branch of the PMC Group headquartered in Mount Laurel, New Jersey, obtained the Site from PPG Industries.

The Polymer Products 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.

EPA was provided with a copy of the Polymer Products Phase II sampling event (dated January 19, 2001), by the facility on September 25, 2018. The sampling results of this Phase II were used in conjunction with the Polymer Products Environmental Indicator Inspection Report from October 2009, and the Polymer Product Phase I Report dated March 30, 2011, to make this groundwater Environmental Indicator determination.

Based on local topography and two of the three temporary groundwater monitoring points installed by Earth Sciences Consultants Incorporated (ESCI) in January 2001, the groundwater flow direction beneath the Facility is southeast toward Little Bushkill Creek.

During the 2001 Phase II sampling event a total of 12 soil samples were collected and analyzed from various areas of potential concern at the Polymer Products site. The overall objective of the Phase II ESA was to provide a general screening of the soil and groundwater quality at the site. For soils, areas of the facility were selected for sampling and analysis that represented the greatest likelihood of having a release. These areas included the area with two former heating oil underground storage tanks (UST), the area with one former diesel fuel UST, the lab vault sump, the former phosgene production building, and several storm water discharge areas. Additionally, one upgradient and two downgradient groundwater samples were scheduled to be collected and analyzed to determine potential off-site and on-site impacts to groundwater (TW-1, TW-2, and TW-3). During drilling groundwater was encountered in the soil overburden in only two of the three groundwater sampling locations. For full sampling data package results from the December 2000 sampling event see the ESCI January 2001 Phase II Report.

Summary of Soil Results

Each of the 12 soil samples (4 surface and 8 subsurface) were analyzed for VOC's, SVOCs, antimony, and zinc.

Zinc was detected in each of the soil samples at concentrations ranging from 22 milligrams per kilogram (mg/kg) to 170 mg/kg. Zinc concentrations detected at the site appear to be within the expected range for natural soils. Zinc concentrations for all soil samples are below Pennsylvania residential statewide health standard of 66,000 mg/kg for direct-contact soils and 12,000 mg/kg for the soil to groundwater pathway.

Antimony was detected in 11 of the 12 soil samples at concentrations ranging from 0.72 mg/kg to 12 mg/kg. Antimony concentrations for all soil samples are below Pennsylvania residential statewide health standard of 88 mg/kg for direct contact-soils and 27 mg/kg for the soil to groundwater pathway.

VOCs and SVOCs were not detected in any of the soil samples collected from the former heating oil UST area.

Methylene Chloride (a common laboratory artifact and possible source of contamination) was detected at the diesel fuel UST area, and soil samples at locations B-1, B-2, B-3, B-4, B-5, TW-1, and TW-2; all sampling results were below Pennsylvania statewide human health standard of 3 mg/kg.

At location B-1, two SVOCs were detected, Di-n-butyl phthalate and Di-n-octyl phthalate were detected at concentrations below the corresponding Pennsylvania statewide human health direct contact numeric values.

At soil sample locations B-4 and B-5 Acetone, bis (2-ethylhexyl) phthalate, and carbon disulfide were detected in soil samples. None of these compounds were detected at concentrations that exceed their corresponding Pennsylvania statewide human health direct contact numeric values.

Summary of Groundwater Results

Groundwater samples were analyzed for VOC's, SVOCs, and total concentrations of antimony and zinc.

Groundwater samples indicated the presence of 2-butanone (MEK) at 21 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. During drilling at the site, groundwater was not encountered above bedrock at the proposed TW-3 location, so groundwater sampling and analysis was not performed at this well location. The December 2000 samples represent the latest groundwater analytical data for the Site.

Wastewater generated onsite is held in a polypropylene AST, which is pumped twice a month by a contractor and transported to the Stockertown Municipal Wastewater Treatment Facility. The Facility does not hold a National Pollutant Discharge Elimination System (NPDES) permit.

Based on the Phase II data, there are no suspected complete pathways or concerns for contaminated groundwater exposures at the Polymer Products Facility at this time.

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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):

No rationale warranted.

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):

No rationale warranted.

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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 judgment/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 "level(s)," and if 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):

No rationale warranted.

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 a "NO" status, 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):

No rationale warranted.

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):

No rationale warranted.

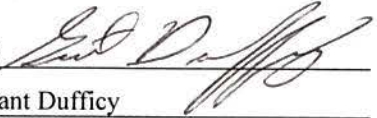
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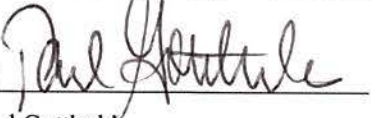
8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

 X 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 **PMC Polymer Products Inc.** facility, **EPA ID PAD 000798454**, located at **100 Station Avenue in Stockertown, PA**. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control, and that monitoring will be conducted to confirm that contaminated groundwater remains within the "existing area of contaminated groundwater" 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 11/20/18
 (print) Grant Dufficy
 (title) RCRA Project Manager

Supervisor: (signature)  Date 11-20-18
 (print) Paul Gotthold
 (title) Assoc. Director Office of PA Remediation
 (EPA Region or State) EPA Region III

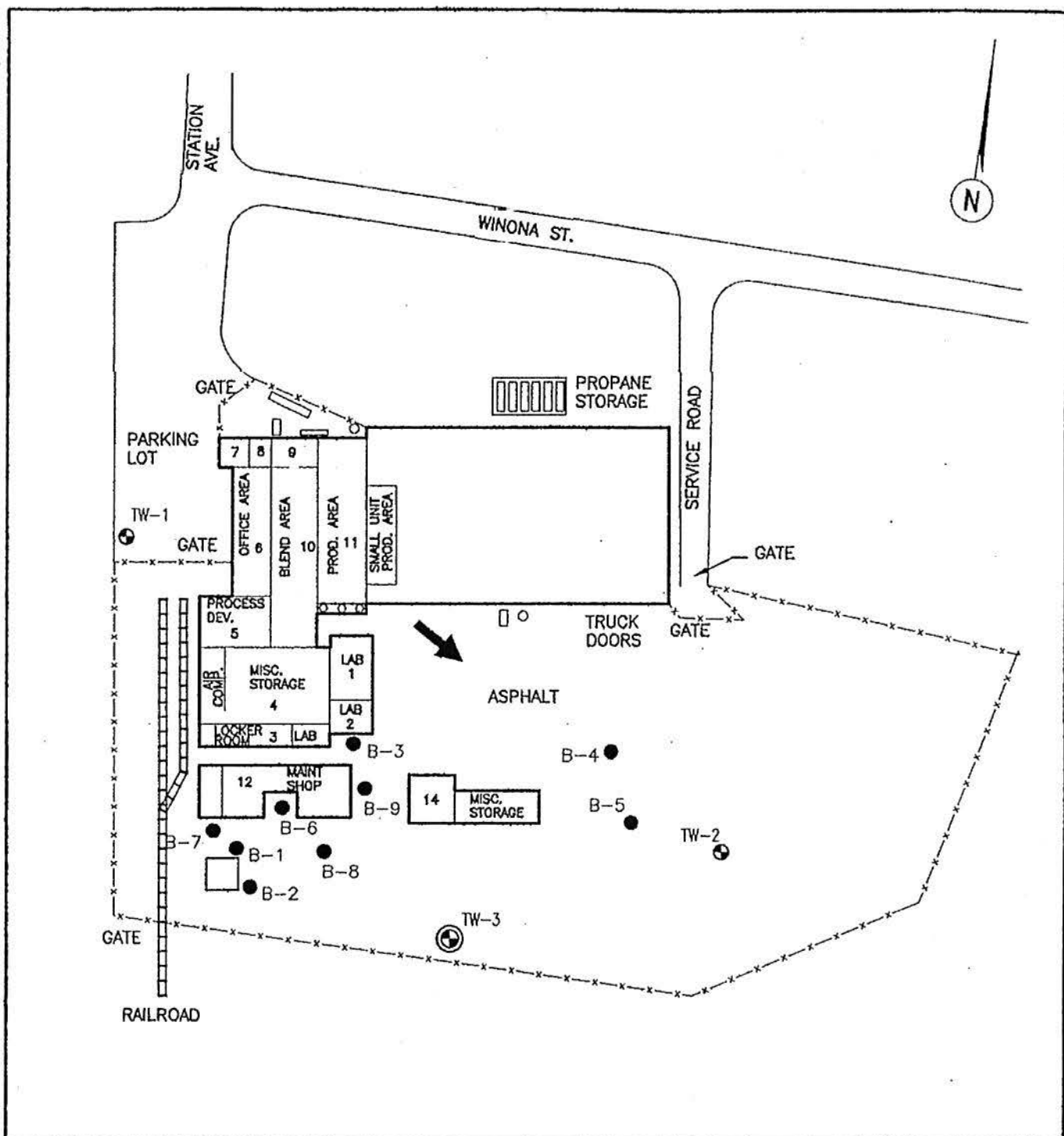
Locations where References may be found

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

Contact telephone and e-mail numbers:

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LEGEND





- TW-1  APPROXIMATE TEMPORARY GROUNDWATER MONITORING LOCATION
- B-1  APPROXIMATE SAMPLE LOCATION
- TW-3  ATTEMPTED GROUNDWATER SAMPLING LOCATION
-  ANTICIPATED GROUNDWATER FLOW DIRECTION

FIGURE 1
SITE MAP WITH SAMPLING LOCATIONS
PMC-POLYMER PRODUCTS COMPANY
100 STATION AVENUE
STOCKERTOWN, PENNSYLVANIA

APPROVED *ASH 11/7/01*
 CHECKED *ASH 11/7/01*
 DRAWN

DRAWING NUMBER
5899006



Earth Sciences Consultants, Inc.

