

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

RCRA Corrective Action

Environmental Indicator (EI) RCRIS code (CA750)

Migration of Contaminated Groundwater Under Control

Facility Name: AMP, Incorporated  
Facility Address: 1000 Wister Street, Harrisburg, PA 17104  
Facility EPA ID #: PAD 980550172

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])

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 “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”<sup>1</sup> 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.

  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 - skip to #8 and enter “IN” status code.

**Rationale and Reference(s):**

The 1989 Preliminary Assessment Report (PA) identified that the potential of groundwater contamination could have occurred between 1975 and 1979 when hazardous liquid materials were stored in the former hazardous storage area (SWMU No. 2) adjacent to the materials testing building. The SWMU No. 2 was a 30 by 120 foot fenced in area underlain with macadam and consisted of no overhead protection or secondary containment. From 1975 to 1979, the potential existed for hazardous materials, if spilled, to migrate to groundwater. Fortunately, no staining or evidence of a release was observed or reported at the former hazardous storage area.

The PA reported that a chemical spill in the central spill trench in the ferric chloride storage area of the chemical storage building was observed during a March 13, 1987 inspection. However, there was no indication that any chemicals or wastes had discharged from the chemical storage building. On March 17, 1987, PADEP conducted an inspection and recommended soil samples at the seam of the pavement in the loading dock area. Four soil samples were collected. Two samples were collected at the eastern and northern corners of the materials testing building, one sample was collected below the macadam layer beneath the loading dock area, and one sample was taken from the fence line. No volatile organic compounds were detected in any of the soil samples. Inorganics detected in the soil samples were below the Statewide Health Standards or were indicative of background conditions. On January 12, 1989 PADEP certified that the closure of the chemical storage building.

In 1996, AMP conducted a Baseline Environmental Site Assessment (BESA) to evaluate potential site contamination at some of its facilities. The facility was chosen because of its former plating operations. Based on the site reconnaissance, interviews, and file reviews, several potential areas of concern (AOCs) were identified. The AOCs included the former floor drain trenches, a former collection sump, and a former french drain used for cooling water discharge. Five monitoring wells, of which two were upgradient wells, were installed to evaluate groundwater quality. Groundwater samples were analyzed for volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and metals. Analytical results for VOCs and SVOCs were non-detects. Some metals were detected; however, the concentrations were below the Pennsylvania Statewide Health Standards. One aquifer was encountered at the facility. Groundwater flow direction below the technology building was to the northwest. The groundwater flow direction beneath the materials testing building is to the east-northeast with a flattened gradient. Currently, there is no regulatory requirement or the need by the facility to conduct groundwater monitoring at the site.

As part of the BESA investigation two soil borings were advanced: one in the former technology building and one near the loading ramp to the chemical storage building. The soil samples were analyzed for VOCs, SVOCs, and metals. Analytical results for VOCs and SVOCs were non-detects. Two metals were detected in the soil samples. The detected metal concentrations were above the Pennsylvania Soil to Groundwater Pathway Standards; however, groundwater results verified that metals detected in soil do not impact the groundwater. The detected soil metal concentrations were below

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<sup>1</sup> “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).

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the Pennsylvania Non-residential Ingestion Standards.

The BESA report concludes that there were no significant releases of hazardous materials at the facility that warrant an environmental concern or additional investigation.

Most of the areas within a three mile radius of the facility are served by public water. The area west of the Susquehanna River is served by the Riverton Consolidated Water Company (RCWC) (now the Pennsylvania-American Water Company). The intakes for the RCWC are located on the Yellow Breeches and Conodoguinet Creeks, west of the site. The community of Harrisburg is served by the Harrisburg City Water Authority. Surface water is drawn from the Susquehanna River, which is approximately 3 stream miles upstream from the site. The city of Steelton, southeast of the site, is served by the Steelton Borough Authority (SBA) which obtains its water downstream from the Spring Creek confluence with the Susquehanna River, approximately 3.3 stream miles downstream of the site. The remaining public water supplier in the area is the Dauphin Consolidated Water Company (DCWC) (now United Water Company).

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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"<sup>2</sup> 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"<sup>2</sup>.

\_\_\_\_\_ If no (contaminated groundwater is observed or expected to migrate beyond the designated locations defining the "existing area of groundwater contamination"<sup>2</sup>) - 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):

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<sup>2</sup> "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 concentration<sup>3</sup> 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<sup>3</sup> 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 concentrations<sup>3</sup> 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):

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<sup>3</sup> 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 implemented)?

\_\_\_\_\_ 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-assessment,<sup>5</sup> 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):

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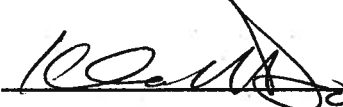
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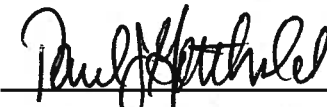
8. Check the appropriate RCRIS status codes for the Migration of Contaminated Groundwater Under Control EI (event code CA750), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (attach appropriate supporting documentation as well as a map of the facility).

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 AMP, Incorporated facility, EPA ID # PAD980550172, located at 1000 Wister Street, Harrisburg, PA 17104. 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 7/20/09  
(print) KHAI M. DAO  
(title) EPA PROJECT MANAGER

Supervisor (signature)  Date 7/21/09  
(print) PAUL J. GOTTHOLD  
(title) ASSOCIATE DIR, PA REMEDIATION  
(EPA Region or State) EPA Region 3

Locations where References may be found:

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

PADEP  
Southcentral Regional Office  
909 Elmerton Avenue  
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