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: **Westinghouse Airbrake Company**
Facility Address: **1001 Airbrake Avenue Wilmerding, Pennsylvania 15148**
Facility EPA ID #: **PAD004341269**

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 #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).

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?

X 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):

Five USTs were removed in 1987 and releases associated with these USTs were the subject of groundwater remediation beginning in 1988 that continued until 2008. The two primary categories of environmental concern at the site included volatile organic compounds (VOCs) and TPH dissolved in groundwater and the presence of LNAPL. A Remedial Investigation (RI) report was submitted to PADEP on May 15, 2001 to address the attainment of site-specific standards under Act 2. Based on all of the previous investigations, it was determined that several site-related constituents of interest (COIs) were present at concentrations that exceeded the Medium Specific Concentrations (MSCs). The results of groundwater sampling identified seven COIs that exceeded their respective non-residential MSCs for used aquifers. These COIs were 1,1-dichloroethene (1,l -DCE), 1,2-dichloroethene (1,2-DCE) (total), 1,1-dichloroethane (1,1-DCA), trichloroethylene (TCE), 1,1,l-trichloroethane (1,1,1-TCA), tetrachloroethene (PCE), and vinyl chloride.

Wabtec continues to be responsible for the investigations and remediation of the historical environmental contamination at Lot 1 under a COA entered into in 2001. Under a Buyer-Seller Agreement dated December 18, 2001, Wabtec retained responsibility for addressing historical impacts identified in soil and groundwater at Lot 1.

[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).

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)?

X 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):

The Final Report concerning the remediation of site soil and groundwater contaminated with heavy metals, solvents, benzene, toluene, ethylbenzene, and xylenes (BTEX), and polynuclear aromatic hydrocarbons (PAHs) was submitted to the PADEP on October 7, 2010 and approved by PADEP on December 29, 2010. The approval noted that the site had attained site- specific, non-residential standards for all identified COIs in soil and/or groundwater.

[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.

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

X 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):

The predominant surface water feature along the northern boundary of the facility is Turtle Creek which is designated as a warm water fishery according to Chapter 93 (Water Quality Standards) of Title 25 of the Pennsylvania Code (PADEP eMapPA, accessed April 12, 2010). All surface water drainage from the site is towards Turtle Creek. Surface runoff is conveyed via a stormwater collection system located throughout the facility. Very little, if any, surface water runoff flows across the facility directly into Turtle Creek.

The bottom and banks of the portion of Turtle Creek located adjacent to the facility are lined with concrete and do not provide natural habitat, according to the 2005 Human Health and Ecological Risk Assessment report. A search of wetland habitats provided in this report documented that no wetlands located on or adjacent to the site (including the aquatic habitat identified within Turtle Creek) met the criteria of an exceptional value wetland. According to PADEP eMapPA (accessed April 12, 2010), Turtle Creek is a non-attaining segment on the Streams Integrated List for the Clean Water Act, impaired for aquatic life resulting from metals and pH related to acid mine drainage. No threatened and endangered species were documented or observed at the site and nearby vicinity.

5. Is the **discharge** of "contaminated" groundwater into surface water likely to be **"insignificant"** (i.e., the maximum concentration[3] 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)?

X 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[3] 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[3] 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[3] 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):
Cracks in the Turtle Creek flood control wall have been repaired. Pennsylvania Single Discharge Waste Load Allocation Program for Toxics and Other Substances (PENTOXSD) modeling performed as part of the risk assessment indicated that groundwater concentrations of site-related chemicals via diffuse flow are estimated to not exceed surface water quality criteria in Turtle Creek as discussed in the 2005 human health risk assessment.

In the human health risk assessment submitted to the PADEP in 2005, groundwater modeling demonstrated that site-related dissolved VOCs and PAH compounds were not adversely affecting surface water quality in Turtle Creek. However, the model indicated that ambient water quality criteria could be exceeded in Turtle Creek if the concentration of 1,1-DCE exceeded 148 microgram per liter (µg/L) at one compliance well (MW-25D). Therefore, quarterly monitoring at monitoring well MW-25D for up to two years was required to demonstrate attainment of ambient water quality criteria for 1,1 -DCE. If the concentration of 1,1-DCE at MW-25D remained stable or indicated a decreasing trend, no further evaluation would be necessary. However, if concentrations of 1,l-DCE at MW-25D increased, a re-evaluation of the potential effect on the ambient water quality would be necessary. In January 2007, quarterly groundwater sampling was initiated to demonstrate attainment of ambient water quality criteria. Groundwater samples were collected to evaluate 1,l-DCE concentrations at MW-25D. The last quarterly sampling event, which completed the eight quarters of monitoring, was performed on November 5, 2008. The Final Report was submitted to PADEP and approved in December 2010. Attainment for both site specific, non-residential soil and groundwater were illustrated. 1,1,-DCE results for all eight sampling events were consistently well below the site specific remediation goal of 148 ug/L.

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

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[4])?

____ 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,[5] 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.

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?"

X 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):

PENTOXSD modeling performed as part of a risk assessment indicated that groundwater concentrations of site-related chemicals via diffuse flow are estimated to not exceed surface water quality criteria in Turtle Creek. If any of these site conditions change, an appropriate monitoring program should be instituted at the facility.

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 **Westinghouse Airbrake Company** facility, EPA ID # **PAD004341269**, located at **1001 Airbrake Ave Wilmerding, PA 15148**. 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) /Griff E. Miller/ Date 1/24/12

(print) Griff Miller

(title) Remedial Project Manager

Supervisor (signature) /Paul Gotthold/ Date 1/24/12

(print) Paul Gotthold

(title) Associate Director

(EPA Region or State) EPA Region 3

Locations where References may be found:

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