

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: **Handy and Harman Tube Company, Inc.**
Facility Address: **701 E. Township Line Road, Norristown, PA 19403**
Facility EPA ID #: **PAD 002335222**

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**”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):

Groundwater beneath and downgradient of the facility is contaminated with trichloroethene and its degradation products (dichloroethenes and vinyl chloride) above MCLs. Maximum concentrations of TCE in shallow groundwater remain over three orders of magnitude above its MCL; maximum concentrations of cis-1,2-DCE and VC in shallow groundwater remain over two orders of magnitude above their MCLs.

Reference:

November 2018 monitoring results as reported in Project Status Meeting presentation, prepared by Penn E&R, April 11, 2019.

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).

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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)?

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 sources of groundwater contamination are believed to have been removed during remedial efforts conducted in the 1990s. The existing contamination has been present for sufficient time that it is believed the migration of contamination has stabilized. As demonstrated by statistical analysis of concentrations in each well over time, groundwater contamination appears to have reached either a steady state or continues to diminish through time. Deep groundwater continues to be pumped and treated, and shallow groundwater continues to be remediated through the two-phase vacuum extraction (TPVE) system and the collection system of laterals downgradient of the parking lot. Studies have shown that the influence of these systems appear to have captured the area where contamination was believed to have originated.

References:

Environmental Indicator Inspection Report for Handy & Harman Tube Co., prepared by Baker, December 2006.
Project Status Meeting presentation, prepared by Penn E&R, April 11, 2019.

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?

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):

As shown in the November 2018 surface water sample results, TCE and its degradation products (dichloroethenes and vinyl chloride) were detected in samples collected from the unnamed tributary to Stony Creek.

Reference:

Project Status Meeting presentation, prepared by Penn E&R, April 11, 2019.

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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 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.

- X** If no - (the discharge of “contaminated” groundwater into surface water is potentially significant) - continue after documenting: 1) the maximum known or reasonably suspected concentration³ 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):

The Federal MCL and the State criteria for TCE is 5 ug/l. During each surface water sampling event of the past five years, an average of approximately seven out of 15 sampling locations contained TCE concentrations over 10 times the MCL. Four sampling locations exceeded 50 ug/L of TCE in the November 2018 sampling event, with the maximum concentration of 210 ug/L TCE occurring at SW-2.

References:

Semi-Annual Progress Report (Oct-Dec 2017), prepared by Penn E&R, April 17, 2018.
Project Status Meeting presentation, prepared by Penn E&R, April 11, 2019.

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)?

 X 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):

Although TCE concentrations in groundwater discharging along a stretch of the unnamed tributary to Stony Creek continue to exceed 50 ug/L and several surface water sampling locations continue to contain exceedances of the Pennsylvania Ambient Water Quality Criteria (AWQC) for Human Health for TCE, cis-1,2-DCE, and vinyl chloride of 2.5 ug/L, 12 ug/L, and 0.025 ug/L, respectively, contaminant concentrations in surface water have generally decreased over time and are expected to continue to decrease due to the continued operation of the TPVE and lateral shallow groundwater collection systems. Additionally, although Stony Creek was reported to be used for recreational fishing and swimming, the impacted unnamed tributary empties into Stony Creek approximately 3500 feet from the facility and the surface water samples from the unnamed tributary that are furthest downstream of the facility (approximately 930 feet from the edge of the facility parking lot) show only TCE exceedances less than 10 times its AWQC, suggesting that impacts to Stony Creek from facility contamination are minimal.

References:

Semi-Annual Progress Report (Oct-Dec 2017), prepared by Penn E&R, April 17, 2018.
Project Status Meeting presentation, prepared by Penn E&R, April 11, 2019.

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?”

 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):

A minimum of semi-annual groundwater and surface water monitoring will continue to ensure groundwater contamination does not migrate beyond the current contaminant plume and to demonstrate with increasing statistical confidence that contaminant concentrations are not increasing.

Reference:

Project Status Meeting presentation, prepared by Penn E&R, April 11, 2019.

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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 **Handy and Harman Tube Company, Inc** facility, EPA ID # **PAD002335222**, located at **701 E. Township Line Road, Norristown, PA 19403**. 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)	<u>/Griff E. Miller/</u>	Date	<u>2/28/20</u>
	(print)	<u>Griff Miller</u>		
	(title)	<u>Remedial Project Manager</u>		
Supervisor	(signature)	<u>/Paul Gotthold/</u>	Date	<u>2/28/20</u>
	(print)	<u>Paul Gotthold</u>		
	(title)	<u>Chief, RCRA Corrective Action Branch 2</u>		
	(EPA Region or State)	<u>EPA Region III</u>		

Locations where References may be found:

USEPA Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
Bureau of Waste Management
2 East Main Street
Norristown, PA 19401

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