DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA750)
Migration of Contaminated Groundwater Under Control

Facility Name: Keystone Color Works, Inc.
Facility Address: 109-151 West Gay Street, York, Pennsylvania 17403
Facility EPA ID #: PAD003018256

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?

☒ 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 "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):

Facility Background Information:

The Former Keystone Color Works (KCW) facility was located at 109 and 151 West Gay Avenue, and consisted of two adjoining parcels (Tract #1 at approximately 0.33 acres, and Tract #2 at approximately 0.4 acres) that together encompassed approximately 0.73 acres of land ("Site" or "Facility"). The portion of the building that was previously located at 151 West Gay Avenue (Tract #2) was demolished and removed, while the portion of the building located at 109 West Gay Avenue (Tract #1) is still present. The property is bordered by the 208-236 North Beaver Street property to the north, row homes of 200-206 North Beaver Street to the east, West Gay Avenue to the south, and railroad tracks to the west.

The earliest known use of the subject Site was for the manufacture of farm machinery from 1887 to 1908. From 1919 until the 1990s, KCW chemically produced organic and inorganic pulp pigments for the wallpaper and surface coating trades using hazardous materials. In particular, KCW produced pigments containing chromium and lead, elements considered to be hazardous, from 1961 to 1980. Large quantities of wastewater and small quantities of waste sludge were generated at the Facility. Wastewater was treated on site and discharged to the sewer system. Waste sludge was drummed and disposed at off-site landfills.

Summary of Environmental Investigations and Remediation:

Investigation and remediation of the Site is primarily being conducted in accordance with Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2) through oversight by Pennsylvania's Department of Environmental Protection (PADEP). KCW is part of a larger cleanup initiative referred to as the Northwest Triangle (NWT) which covers a multi-block area of separate properties that cover 14.5 acres in the northwestern corner of the City of York. A combined Remedial Investigation Report and Final Report for the NWT properties were submitted to PADEP for final review and approval on October 14, 2013. The City of York Redevelopment Authority (RDA), a non-profit organization, is remediating, rehabilitating, and/or redeveloping these impacted and underutilized properties as part of the city's revitalization activities. For the full characterization and attainment demonstration activities completed for the former KCW Facility, please refer to the "Remedial Investigation Report and Final Report for the Northwest Triangle Properties," prepared by ARM Group Inc. on behalf of the Redevelopment Authority of the City of York.

Investigations conducted at the Site in 2004 and 2005 are summarized as follows:

- June 1, 2004 preliminary Phase I Environmental Assessment Report prepared by Edge Environmental, Inc. State and federal records were reviewed, a Site reconnaissance was performed, and interviews were conducted with local officials, owners, and occupants. This report identified historical Site uses and potential environmental issues.

[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).

- June 2, 2005 Revised Phase I Environmental Assessment Report prepared by Pennoni Associates, Inc. This report expanded on the Edge Environmental June 2004 Phase I report, and included Sanborn maps, historical aerial photographs, and an Environmental Data Resources (EDR) Report.

- December 21, 2005 Interim Site Characterization Report prepared by GTS Technologies, Inc. Six surface soil samples were collected along the western side of the KCW building. Lead concentrations exceeding the PADEP Statewide Health Medium-Specific Concentration (MSC) for lead were identified in four of the samples.

- Between 2007 and 2012, ARM Group Inc. (ARM) was contracted by the RDA to perform additional site sampling and characterization to further support the identification and delineation of potential contamination, and to support the development and implementation of environmental remediation plans as part of the Site redevelopment activities. As part of the investigation and remediation of the multi-block area referred to as the Act 2 Northwest Triangle site, the RDA conducted the sampling of soils and groundwater at the former KCW parcels.

One shallow groundwater monitoring well (MW-1S) was installed in January 2008 near the center of the northwestern property boundary. MW-1S is a shallow well intended to monitor the upper water-bearing zone at an upgradient location across the NWT properties. MW-1S is approximately 48 feet deep, and was drilled along the west side of the Keystone Color Works Building where the highest lead concentrations were detected in site soils.

MW-1S was sampled for select volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and metals in January, February and September 2008. None of the constituents tested for were detected above their respective PADEP Residential Used Aquifer MSCs.

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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):

[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):

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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)?

☐ If yes - skip to #7 (and enter "YE" status code in #8 if #7 = yes), after documenting: 1) the maximum known or reasonably suspected concentrations 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 concentrations 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 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):

[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 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):

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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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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 former Keystone Color Works Facility, EPA ID No. PAD003018256, located at 109-151 West Gay Street, York, Pennsylvania 17403. This determination will be re-evaluated when the Agency/State 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 3/5/14
(print) Jeanna R. Henry
(title) Remedial Project Manager
Office of Pennsylvania Remediation

Supervisor (signature) _____ Date 3/6/14
(print) Paul Gotthold
(title) Associate Director
Office of Pennsylvania Remediation
EPA Region 3

Locations where References may be found:

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