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: **Spray Products Corporation**
Facility Address: **1323 Conshohocken Road, Plymouth Meeting, PA 19462**
Facility EPA ID #: **PAD042716084**

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).

Background:

Spray Products Corporation (Spray Products or Facility) is located at 1323 Conshohocken Road, Plymouth Meeting, Montgomery County, Pennsylvania. The Facility is approximately 7.25 acres, contains two masonry and steel buildings (the north and south buildings), an outdoor AST farm, and product storage areas. A rail spur separates the north and south buildings. The Facility is within an industrial area and the future use of the property is anticipated to remain non-residential.

Historically, the Facility was used as the Penn Central Railroad rail yard. In December 1973 Spray Products purchased the property and began operations which included storing and packaging aerosol products (paints, brake fluid, carburetor cleaners, staring fluid, and penetrants). In 2001, the current owner ORB Acquisition Group, Inc (ORB), purchased the Facility and continues similar operations under the name of Spray Products Corporation. In conjunction with their acquisition ORB, entered into a Consent Order and Agreement (COA) with the PADEP that required the Facility be remediated in accordance with Pennsylvania's Land Recycling Program (Act 2).

Environmental evaluations of the Facility were initiated in 1989. Since that time characterization activities have identified several releases of hazardous substances and reported chlorinated volatile organic compounds (CVOCs), heptane, and petroleum hydrocarbons in soil and groundwater beneath the property. Remedial work to address contaminant source areas has included characterizing the extent of contaminants in groundwater and source removal by soil excavation beneath the underground storage tank (UST) tank farm and in areas where recent heptane releases were identified. The most recent soil and groundwater analytical data available for review is presented in the *Remedial Investigation Report & Cleanup Plan* (RIR/CP), dated September 5, 2018, prepared by Stantec Consulting Services Inc. The RIR/CP included proposed remedial activities to remove contaminant exposure pathways which are anticipated to include engineering (vapor mitigation, capping, as necessary) and institutional (non-residential use, groundwater use restrictions, etc.) controls. The engineering and institutional controls will be documented in an environmental covenant at the completion of Act 2 remedial work. The most recent Act 2 submittal included a revised Notice of Intent to Remediate (NIR) which provided notification of a new heptane release, indicated that contaminants in soil and groundwater will be remediated to a combination of the Act 2 Statewide Health Standards and Site Specific Standards, and opted to have the site participate in the PADEP and EPA one cleanup program. An overview of site hydrogeology and groundwater characterization activities as they relate to the groundwater environmental indicator are presented below:

Geology/Hydrogeology

The Facility is located within the Triassic Lowlands Section of the Piedmont Physiographic Province. Bedrock is mapped as the Stockton Formation, a sedimentary rock type consistent if sandstones and mudstone. Immediately to the south and west of the Site is the Ledger Formation, a crystalline rock type with mapped karst features. Ground surface at the Facility slopes gently to the west in the direction of Diamond Run stream, a warm water fishery, which flows to the west southwest and discharges into the Schuylkill River, located approximately 1,400 feet to the west. Soil is mapped as Urban land and Urban Land Udorthents Limestone Complex a clay loam derived from limestone bedrock that has been reworked in conjunction with filling and grading of the area.

As identified during environmental evaluations of the facility, subsurface conditions include silty and clayey soils overlying bedrock. The depth to bedrock ranges from approximately 5 to 30 feet below ground surface (bgs). Encountered bedrock is predominately dolomite, characteristic of the Ledger Formation. Bedrock exploration activities suggest the presence of pinnacles, void spaces and other karst features beneath the property. Shallow groundwater is encountered between 5 and 10 feet bgs. Monitoring wells installed above bedrock are seasonally dry in some portions of the Site. Groundwater elevations suggest shallow groundwater flows to the west northwest in the direction of Diamond Run. Groundwater within the bedrock aquifer is anticipated to flow through fractures and void spaces where the orientation, connectivity, and aperture of these features dictates groundwater movement. Based on regional conditions (hydrologic units, topography, areas of anticipated groundwater discharge) and the mapped extent of the groundwater plume, discussed below, groundwater within the bedrock formation is anticipated to flow to the southwest in the direction of the Schuylkill River.

Groundwater Investigation

Groundwater characterization activities have included the installation and sampling of over 20 monitoring wells. Monitoring wells have been installed to evaluate source areas and the extent of contamination. In 2016, three additional monitoring wells (MW-19, MW-20, and MW-20A) were installed offsite on the adjoining property to the south. Results of groundwater characterization indicate the contaminant plume(s) have migrated into the bedrock aquifer and are extending offsite. The offsite extent of groundwater contamination was evaluated through a fate and transport analysis using spreadsheet modeling tools. The results of the modeling suggest the contaminant plume(s) will extent up to 2,850 feet from the source area in the shallow bedrock and up to 1,550 in the deep bedrock aquifer. The plumes will migrate in the direction of the Schuylkill River,

but do not reach the river. The model used conservative assumptions, however, installation of additional offsite wells will be necessary in the future to calibrate and confirm the results. Available groundwater analytical data collected from 1989 through 2017 suggest concentrations in groundwater are decreasing and support the projected outcomes of the fate and transport modeling results.

Site characterization and sampling data have identified the following contaminants exceeding the Act 2 Statewide Health Standards in groundwater beneath the Facility:

- Light non-aqueous phase liquid (LNAPL) overlying shallow groundwater on the southwestern portion of the Facility.
- Petroleum hydrocarbons (benzene, chlorobenzene, etc.) in the shallow and deep aquifer.
- Chlorinated ethanes (1,1,1-trichloroethane, 1,1-dichloroethane, and chloroethane) in the shallow and deep aquifer.
- Chlorinated ethenes (Tetrachloroethene, trichloroethene, 1,1-dichloroethene, cis-1,2-dichloroethene, and vinyl chloride) in the shallow and deep aquifer.
- Heptane in the shallow and aquifer.
- In addition, EPA has previously requested that 1,4-dioxane be incorporated into future laboratory analysis because of its association with 1,1,1-trichloroethane. It is currently unclear if 1,4-dioxane has been analyzed in groundwater samples collected from the Facility.

Groundwater receptor surveys were presented in the RIR/CP and the Environmental Indicator Inspection Report (Inspection Report), prepared by Baker, and dated April 2013. As reported, the site and surrounding area are serviced by public water. A supply well receptor survey identified two industrial supply wells on the Delaware Valley Concrete (DVC; 1100 Conshohocken Road) property located approximately 2,600 feet hydrogeologically downgradient of the Facility. The industrial supply wells were reportedly drilled to depths of 330 feet and 600 feet to avoid area-wide groundwater contamination originating from the Allan Wood Steel Mill located south and east of the DVC property. Considering the industrial supply wells were constructed at depths to avoid regional contamination and underly the elevations of contaminant plumes that originate from the facility, the wells are not utilized for potable purposes, and the fate and transport modeling suggests the plume extent will not reach the DVC property, the industrial supply wells are not considered receptors to groundwater contamination originating on the Facility.

Surface water receptors in proximity to the site include Diamond Run and the Schuylkill River. Based on the results of the fate and transport modeling and groundwater analytical data, the groundwater contamination is not anticipated to discharge into surface water.

Historically, a limestone quarry located approximately 0.4 miles to the south of the Facility was considered a receptor. Quarrying operations ceased in the early 2000s and the quarry was permitted and backfilled as a reclamation site. The quarry no longer contains surface water and groundwater extraction at the quarry has ceased. The quarry is no longer considered a receptor associated with the Facility.

The above considerations resulted in a “yes” determination for the groundwater environmental indicator.

References

- Remedial Investigation Report & Cleanup Plan, Spray Product Corporation – Plymouth Meeting, Pennsylvania, Stantec Consulting Services, Inc., dated September 5, 2018
- Amended Notice of Intent to Remediate (NIR), August 2022
- Environmental Indicator Inspection Report for Spray Products Corporation, Baker, dated April 2013
- Re: Spray Products Corporation, EPA ID # PAD072416084, RCRA Site Inspection, letter from Stantec Consulting Services, Inc. to Ms. Tina Entenman, dated July 20, 2012.

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):

Site characterization and sampling data have identified the following contaminants exceeding the Act 2 Statewide Health Standards in groundwater beneath the Facility:

- **Light non-aqueous phase liquid (LNAPL):**
  LNAPL has been identified at thicknesses ranging from a sheen to over 0.3 feet in the southeast portion of the Facility.

- **Petroleum hydrocarbons (benzene, chlorobenzene, etc.):**
  Historically several petroleum hydrocarbons were reported in groundwater above current Act 2 standards. In October 2014, benzene and chlorobenzene exceeded their respective standards at maximum concentrations of 60 micrograms per liter (µg/L) and 160 µg/L, respectively. Petroleum hydrocarbons are reported in the shallow and bedrock aquifer beneath the Facility.

- **Chlorinated ethanes (1,1,1-trichloroethane, 1,1-dichloroethane, chloroethane [1,1,1-TCA, 1,1-DCA, CA]):**
  In October 2014, maximum concentrations of ethanes were reported as 1,200 µg/L for 1,1,1-TCA, 110 µg/L for 1,1-DCA, and 1,500 µg/L for CA. The CVOC plume associated with ethanes is present in the shallow and bedrock aquifer.

- **Chlorinated ethenes (Tetrachloroethene, trichloroethene, 1,1-dichloroethene, cis-1,2-dichloroethene, and vinyl chloride [PCE, TCE, 1,1-DCE, cis1,2-DCE, VC):**
  In October 2014 maximum concentrations of PCE, TCE, 1,1-DCE, cis-1,2-DCE, and VC were 170, 720, 840, 1,900, and 64 µg/L, respectively. The ethene CVOC plume is present in the shallow and bedrock aquifer.

- **Heptane**:
  In October 2014, heptane was detected at a maximum concentration of 170 µg/L. EPA understands a newer heptane release has been reported but it is currently unclear if the release impacted groundwater.

In addition to the above, EPA has previously requested that 1,4-dioxane be incorporated into future laboratory analysis of groundwater samples because of its association with 1,1,1-TCA.

[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)?

   ☒ 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):

Groundwater characterization activities have included the installation and sampling of over 20 monitoring wells. Monitoring wells have been installed to evaluate source areas and the extent of contamination. In 2016, three additional monitoring wells (MW-19, MW-20, and MW-20A) were installed offsite on the adjoining property to the south. Results of groundwater characterization indicate the contaminant plume(s) have migrated into the bedrock aquifer and are extending offsite. The offsite extent of groundwater contamination was evaluated through a fate and transport analysis using spreadsheet modeling tools. The results of the modeling suggest the contaminant plume(s) will extend up to 2,850 feet from the source area in the shallow bedrock and up to 1,550 in the deep bedrock aquifer. The plumes will migrate in the direction of the Schuylkill River, but do not reach the river. The model was prepared using conservative assumption and the results of the model support that contaminated groundwater will remain within the existing area of groundwater contamination. Installation of additional offsite wells will be necessary in the future to calibrate and confirm groundwater modeling results. Available groundwater analytical data collected from 1989 through 2017 suggest concentrations in groundwater are decreasing and support the projected model outcomes.

[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):

Ground surface at the Facility slopes gently to the west in the direction of Diamond Run stream, a warm water fishery, which flows to the west southwest and discharges into the Schuylkill River. Diamond Run is located approximately 1,000 feet west of the Site. The Schuylkill River is located approximately 1,400 feet to the west southwest.

Diamond Run and the Schuylkill River were located were evaluated as potential receptors for discharge of contaminated groundwater. Based on the results of the fate and transport modeling and groundwater analytical data, the groundwater contamination is not anticipated to discharge into surface water.

Historically, a limestone quarry located approximately 0.4 miles to the south of the Facility was considered a receptor. Quarrying operations ceased in the early 2000s and the quarry was permitted and backfilled as a reclamation site. The quarry no longer contains surface water. The quarry is no longer considered a receptor associated with the Facility.

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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)?

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☐ 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 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[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):

Not applicable.

[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):

Not Applicable.

[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):

EPA understands that the facility submitted an amended Act 2 Notice of Intent to Remediate (NIR) which provided notification of a new heptane release, indicated that contaminants in soil and groundwater will be remediated to a combination of the Act 2 Statewide Health Standards and Site Specific Standards, and opted to have the site participate in the PADEP and EPA one cleanup program. In conjunction with Act 2 remedial activities which is anticipated to include a new Remedial Investigation Report, Cleanup Plan, and Final Report, groundwater monitoring activities will continue. At this time groundwater monitoring activities are anticipated to include liquid level gauging and collecting samples from the entire monitoring well network that is associated with the Facility.

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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 **Spray Products Corporation Facility, EPA ID: PAD042716084, 1323 Conshohocken Plymouth Meeting, PA 19462**. 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) Todd Richardson Date 9/27/2023
(print) Todd Richardson
(title) RPM

Supervisor (signature) Date 9/27/2023
(print) Elizabeth Olhasso
(title) Section Manager
(EPA Region or State) U.S. EPA Region III

Locations where References may be found:

US EPA Region III
Land and Chemicals Division
1600 JFK Blvd (LD12)
Philadelphia, PA 19103

PADEP
Southeast Regional Office
2 East Main Street Norristown,
PA 194011-4915

Contact telephone numbers and e-mail
(name) Todd Richardson
(phone #) 215-814-5264
(e-mail) richardson.todd@epa.gov

(name)
(phone #)
(e-mail)