

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: FCI USA Inc. (Formerly: DuPont Connector Systems; Berg Electronics)
Facility Address: 320 Busser Road Emigsville, PA 17318
Facility EPA ID #: PAD000796334

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):

FCI USA Inc. (then known as DuPont Connector Systems) received a Final Decision for No Further Action (NFA) from the U.S. Environmental Protection Agency on May 14, 1992 for the facility located at 320 Busser Road Emigsville, PA 17318. A Migration of Contaminated Groundwater Under Control Environmental Indicator was completed on 8/20/2008 to satisfy agency obligations for public awareness because the EI forms were developed after the Final Decision and not completed to date. The decision to issue an NFA at the Facility was due to the results submitted in a Verification Investigation (VI) final report received on November 25, 1991. The analytical results for the soil samples taken during the VI showed that the levels of contamination present at the site were far below EPA criteria for remedial action or potential migration to the groundwater. Therefore, the EI prepared at that time concluded that groundwater was under control.

On November 16, 2005 FCI, due to property transfer to Mundis Race Associates, LLC, entered into the PA Act 2 program by submitting a Notice of Intent to Remediate (NIR), in accordance with Act 2 requirements. Between 2000 and 2015, several additional phases of site investigations were performed initially under the FCI corporate due diligence process and under Act 2. Accordingly, this updated EI is being prepared.

A Revised Remedial Investigation and Final Report (RIFR) was submitted to PADEP on April 3, 2017 and conclusions related to groundwater were as follows:

Groundwater has been found to be impacted with the following Constituents of Concern (COCs):

- 1,1,1-trichloroethane (TCA)
- Trichloroethylene (TCE)
- 1,1-dichloroethylene (DCE)
- 1,1-dichloroethane (DCA)
- Cis 1,2-dichloroethylene
- 1,4-dioxane (14D)
- Vinyl chloride (VC)
- Nickel (Ni)
- Manganese (Mn)

Specific site areas and their related impacts consist of:

- The Former Plating Pit Area (AOC 1) is the source of an on-site dissolved Ni plume that meets residential groundwater PA Medium Specific Concentrations (MSCs) by the time it reaches the downgradient property boundary. Elevated Mn was also present in this plume but below cleanup standards. Ni concentrations decreased substantially in the period following the scale back and final cessation of the plating operation and the subsequent remediation in this area.

- The Former Waste Oil UST Area (AOC 2) is a primary source of a TCA plume (along with the associated breakdown products DCE, and DCA, as well as 14D) with concentrations above residential and non-residential groundwater MSCs at the downgradient property boundary. TCA plume compounds were detected marginally above their MSCs in only the deep groundwater flow regime at the down-gradient property boundary well MW-17d. TCA plume components have occasionally been detected in water supply wells at the adjacent quarry, above MSC.
- The Former Loading Dock Sump Area (AOC3) was located in close proximity to the Former Waste Oil UST area described above. TCA (along with the associated breakdown products DCE, and DCA, as well as 14D) groundwater contamination from this source is commingled with the Former Waste Oil UST area groundwater contamination.
- A TCE groundwater plume (AOC 9) (along with associated breakdown products, DCE and VC, as well as 14D) is present on and leaves the southern end of the facility at concentrations above non-residential (and residential) MSCs in both the shallow and deep bedrock flow regimes. Additionally, a separate phase liquid (SPL) comprised of 5% TCE, among other constituents, was historically encountered in well MW-16d on the up-gradient western property boundary. Analysis of site history information and hydrogeologic characterization supports the fact that the SPL did not result from identified Site activities. The existence of the TCE SPL/dissolved phase plume has not been tied to a specific source or release. However, an on-site historical release of TCE has been identified which appears to be distinct from this plume as noted below.
- A historic TCE release (AOC 10) has been identified in the vicinity of the present day, on-site storm water infiltration basin. An industrial septic system was operated on the site which serviced several properties within the York County Industrial Park from the early 1960s through the connect of the sewers to the Springettsbury Public Treatment Works in the early-mid 1970s, prior to the development of the site in the mid-1970s. Groundwater data from within this release area indicates a local moderate impact which becomes indistinguishable from the regional TCE plume outside of the local wells. CSIA analysis has indicated that the TCE in groundwater within and adjacent to this area of local impact exhibit a distinctly different isotopic signature than the regional TCE plume, confirming that they are not related. Based on the presence of the overlapping regional plume, the down-gradient extent of the on-site sourced TCE plume cannot be completely determined.

Reference:

Revised Remedial Investigation and Final Report, April 3, 2017, HRP Associates, Inc.

Footnotes:

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 monitoring efforts have occurred at, and surrounding, the facility between 2000-2016. The DEP Hazardous Sites Cleanup Act (HSCA) Program began assessment of regional groundwater issues and impacts in March of 2009. This assessment included the sampling and analysis of private water wells. The HSCA group installed eleven new monitoring wells on, and proximal to, the facility to better assess the distribution and potential sources of the regional groundwater contamination. Those investigations have included the installation of nine deeper and two shallower monitoring wells, three of which were installed on the facility property.

As part of the RIFR investigation, between December of 2013 and October of 2015, eight quarters of groundwater and water supply well sampling were performed. Samples were retrieved from select monitoring wells and from off-site water supply wells. The purpose of the sampling was to demonstrate that conditions in area groundwater and drinking water wells were not getting worse over time indicating a steady or decreasing plume. Previous attainment monitoring was limited to on-site monitoring wells (and one off-site water supply well). During this monitoring period, two additional on-site monitoring wells were installed which were added to the monitoring program. The results of this monitoring (and all monitoring to date) allowed for an illustration of the overall distribution, extent, and magnitude of COCs.

Additionally, vertical groundwater plume definition was assessed by comparing contaminant concentrations in eight well pairs and 2 well triplets. The results provided in the RIFR indicate that vertical groundwater plume delineation is well established.

In order to evaluate analytical concentration trends associated with facility impacts, Mann-Kendall (M-K) statistical trend analysis was performed. Results of the M-K analysis indicates that there are increasing trends of certain daughter products of the main contaminants TCE and TCA. However, this is coupled with decreasing trends of TCE and TCA as well as stable to decreasing trends of all COCs in the downgradient monitoring wells of the AOCs. This is indicative of stable or decreasing plumes undergoing natural attenuation and also identifies the plume as stable and no longer migrating.

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):

Surface water sampling from Emig Run and Codorus Creek was conducted in 2013 based on past sampling results from 2002 and 2005.

Low level VOCs (similar to some site identified COCs) were detected consistently along the reach of Codorus Creek up to 14,000 feet upstream of the facility. Therefore, these contaminant concentrations appear to be related to discharges upstream of the site and site area. Furthermore, contaminant signature comparison of upstream inflow versus site COCs appears to show site-related groundwater does not discharge to Codorus Creek.

Emig Run has been determined to be a losing stream that does not receive groundwater discharge in the vicinity of the facility.

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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.
- 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):

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)?
- 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-assessment⁵, 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.

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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):

Typically, EIs are prepared as an interim evaluation of current conditions at a facility in order to assess if conditions will not worsen while continuing to investigate and prepare a remedy, if necessary. This updated EI is being prepared as part of EPA’s evaluation of additional investigatory work and remedial efforts by PADEP, HSCA, and the facility following the RIFR approval by PADEP.

All impacted properties have been connected to the public water supply, thereby eliminating the drinking water ingestion pathway. The local ordinances requiring mandatory connection and the availability of the extended water mains for future development ensure that this condition will continue to be met in the future. It is noted that the geographic extent of the ordinances areas of applicability were extended into areas well beyond the known extent of contamination to areas where public water is already available and (in the case of Springettsbury Township) connect to an existing groundwater use prohibition zone (The Mount Zion Water District).


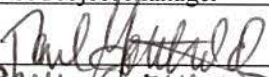
Current operations by New Concept Technology are limited primarily to stamping and assembly operations and no plating or vapor degreasing is performed. Therefore, additional or new contributions to existing groundwater contamination are unlikely.

Continued monitoring was not a component of the RIFR approved by PADEP. However, considering this information along with the explanation for question #3 that the migration has stabilized, EP does not believe that a response of “no” for this question results in an indication that migration of groundwater is not under control as directed. Therefore, EPA has determined that the response to question #8 will be yes given the circumstances described in this EI for 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 FCI USA Inc. facility, EPA ID # PAD000796334, located at 320 Busser Road, Emigsville, PA, 17318. 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	<u>(signature) </u> <u>(print) Kevin Bilash</u> <u>(title) RCRA Project Manager</u>	Date <u>9/12/17</u>
Supervisor	<u>(signature) </u> <u>(print) PAUL GOTTHOLD</u> <u>(title) ASSOCIATE DIRECTOR</u> <u>(EPA Region or State) EPA REGION 3</u>	Date <u>9-12-17</u>

Locations where References may be found:

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