

RCRA RECORDS
FACILITY Plainville Plating
ID. NO. CTD001149459
FILE LOC. R-13
CORR # 103878

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: Plainville Plating
Facility Address: 21 Forestville Avenue Plainville, CT 06062
Facility EPA ID #: CTD001149459

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 #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?

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): Groundwater samples collected downgradient of the facility building in 1998, contained arsenic, cadmium, copper, cyanide, lead, nickel, and zinc and in 1999, contained cadmium, hexavalent chromium, copper, nickel and zinc in excess of the CTDEP Remediation Standard Regulations (RSRs) Surface Water Protection Criteria (SWPC). Sampling conducted in 1998, contained cadmium, chromium, lead and nickel and in 1999, cadmium, chromium and nickel were present at levels in excess of the CTDEP RSRs Groundwater Protection Criteria (GWPC) for a GA area*. Also in 1999 1,1-dichloroethylene, tetrachloroethylene, trichloroethylene, and 1,1,1-trichloroethane were present at levels exceeding the GWPC. Concentrations in older groundwater data indicate that a 1,1,1-trichloroethane may have been present on site as a dense non-aqueous phase liquid (DNAPL). Refer to Plainville Plating, March 26, 2002 Correspondence, dated May 29, 2002.

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).

*** The Groundwater Classification for this area is GB. A comparison to GA Ground Water Protection Criteria is being made for illustrative purposes only.**

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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): Additional sampling from newly installed groundwater monitoring wells, located 120-180' further hydraulically down gradient than previously installed monitoring wells, indicate that the extent of the plume, to relevant CTDEP Remediation Standard Regulations (RSRs) Surface Water Protection Criteria (SWPC), has been delineated. Refer to the August 11, 2004, VCA-CA750 Groundwater Program Supplemental Groundwater and Surface Water Data Report.

Footnotes:

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): Groundwater from the site discharges to two unnamed streams. The two unnamed streams join approximately 500 feet north-east of the facility. The unnamed stream and groundwater ultimately discharge to the Pequabuck River located approximately 1000 feet north-east 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)?

 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 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): **GROUNDWATER:** With the exception of cadmium, concentrations of metals and chlorinated compounds in samples from two newly installed well pairs were not detected at levels above CTDEP Groundwater Protection Criteria (GWPC), Surface Water Protection Criteria (SWPC), or the Proposed Residential Volatilization Criteria. Cadmium was detected at a concentration of 0.0062 mg/l. The CTDEP GWPC is 0.005 mg/l and the SWPC is 0.006 mg/l. These exceedances are considered to be insignificant for this EI determination.

SURFACE WATER: In 1994 surface water sampling (in an off-site unnamed stream) detected 1,1,1-trichloroethane as high as 260 ug/l. Refer to Appendix H *Supplemental Groundwater Quality Assessment*, January 1995. Cadmium, chromium, copper, nickel and zinc were detected in 2001 surface water samples at levels that exceeded the CTDEP Water Quality Criteria for Human Health and Aquatic Life, dated December 17, 2002.

Two unnamed streams run through a wetland area located north-east of the Plainville Plating Property. One stream flows from west to east and the other flows from the south to the north-east. The streams merge into one and ultimately discharges to the Pequabuck River. Additional sampling was conducted at the point where the stream discharge to the Pequabuck River. With the exception of cadmium and copper, concentrations detected in surface water at this location are below the CTDEP Human Health and Aquatic Life Water Quality Criteria, dated December 17, 2002.

In July 2004 cadmium was detected at 0.0127 mg/l, approximately one order of magnitude in excess of the CTDEP Chronic Aquatic Life Criteria of 0.00135 mg/l. Based on the comparative sizes of the stream and the Pequabuck River, dilution of at least an order of magnitude is expected. Average flow in the Pequabuck River is likely several of orders of magnitude greater than the unnamed streams.

The cadmium concentration of 0.0127 mg/l is approximately 3 times the Human Health Criteria for the consumption of water and organisms. Since neither the stream or river waters are used as potable water supplies, and fish consumption is expected to be minimal, the exceedance of the Human Health Criteria is not considered to be significant.

In July 2004, copper was detected at 0.017 mg/l, less than one order of magnitude in excess of the CTDEP chronic Aquatic Life Criteria of 0.0048 mg/l.

Based on the two rounds of surface water sampling, there is no evidence that contaminant concentrations are increasing. Additional groundwater and surface water sampling will be conducted as described in question 7 to provide additional documentation that contaminant concentrations are not increasing.

Footnotes:

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-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): _____

Footnotes:

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): Recently installed monitoring wells MW-19 and MW-19D will be sampled on a semi-annual basis for metals and volatile organic compounds. A surface water sample will also be collected on a semi-annual basis at approximately the same location as surface water sample SW72604. The surface water sample will also be analyzed for metals and volatile organic compounds. Refer to the August 11, 2004, VCA-CA750 Groundwater Program Supplemental Groundwater and Surface Water Data Report.

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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 **Plainville Plating Company** facility, EPA ID # **CTD001149459**, located at **21 Forestville Avenue, Plainville CT**. 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) Carolyn Casey Date 9/9/04
(print) Carolyn Casey
(title) RCRA Facility Manager

Supervisor (signature) Matthew R. Hoagland Date 9/28/04
(print) Matthew R. Hoagland
(title) Section Chief, RCRA Corrective Action
(EPA Region or State) EPA New England

Locations where References may be found:

EPA New England facility files

Contact telephone and e-mail numbers

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