

US EPA ARCHIVE DOCUMENT

**Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)**

Page 2

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:	Former DaimlerChrysler Corp. Indianapolis Foundry
Facility Address:	1100 South Tibbs Avenue, Indianapolis, Indiana 46241
Facility EPA ID #:	IND 087 032 611

- I. 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
- ☐ 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.,

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 3

RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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):

General Background

The former DaimlerChrysler Indianapolis Foundry operated as a gray iron foundry for manufacturing automobile motor blocks from the early 1950s until the plant was deactivated in 2005 and subsequently razed in 2006. In November 1980, Chrysler submitted a RCRA Part A permit application to U.S. EPA for storage of paint waste, benzene, carbamate (urethane), formaldehyde, 1,1,1-trichloroethene and K089 wastewater treatment plant sludge. At the request of Chrysler in May 1983, U.S. EPA withdrew the RCRA Part A permit application. No record of a RCRA permit being issued to the facility is known. In October 2009, the current owner of the property, Parts Carnival, LLC., conducted a Phase I Environmental assessment and a groundwater quality assessment as part of pre-acquisition due diligence. The groundwater quality assessment work consisted of advancing five temporary monitoring wells along the downgradient (east and southeast) portion of the property to evaluate the identified constituents of concern discovered during the Phase I assessment. Downgradient groundwater samples collected from the temporary monitoring wells were sampled for VOCs, SVOCs, dissolved RCRA metals and PCBs. Laboratory analytical results of groundwater samples indicated that the analyzed parameters achieved IDEM’s Default Residential Closure Values, with the exception of vinyl chloride in one sample collected from a temporary monitoring well located on the northeastern portion of the property. No groundwater sampling and analysis is known to have occurred at the foundry property prior to the groundwater quality assessment completed on behalf of the current owner in October 2009.

Hydrogeology

The native soils at the facility are generally sand and gravel with minor amounts of silt and clay. In some areas there are significant proportions of cobbles, usually at a depth of approximately six to eight feet below ground surface. The sand and gravel extends to depths ranging from 25 to 30 feet below ground surface where a stiff to tough silty clay layer is encountered. That clay layer extends to a depth of approximately 40 feet below grade. Beneath the clay, shale bedrock is present to a depth in excess of 130 feet below grade. Groundwater is present in the sand and gravel zone at a depth of approximately 20 feet below ground surface and flows in an easterly to southeasterly direction toward Eagle Creek, which is located approximately 1,200 feet from the eastern boundary of the property (CPI, Groundwater Quality Assessment Report; June 29, 2011).

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).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 4

Current Contamination

Downgradient groundwater samples collected from temporary monitoring wells installed as part of the groundwater

quality assessment in October 2009 were sampled for VOCs, SVOCs, dissolved RCRA metals and PCBs. Laboratory analytical results of groundwater samples indicated that the analyzed parameters achieved IDEM's Default Residential Closure Values, with the exception of vinyl chloride in one sample collected from a temporary monitoring well located on the northeastern portion of the property. The groundwater sample from that well was shown to have a vinyl chloride concentration of 6.57 µg/L. The MCL for vinyl chloride is 2.0 µg/L (CPI, Groundwater Quality Assessment Report; June 29, 2011). Further investigation or remediation of the documented groundwater quality impact is not warranted.

Table 1 - Maximum Concentrations of Constituents Exceeding the MCL at the Former DiamlerChrysler Corp. Indianapolis Foundry

Contaminant	Date of Sample	Well I.D.	Maximum Concentration (µg/L)	MCL (µg/L)
Vinyl Chloride	10/22/2009	MW-1	6.57	2

Data are from *Groundwater Quality Assessment Report* prepared by Continental Placer Inc. ("CPI"), and dated June 29, 2011.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 5

3. Has the migration of contaminated groundwater stabilized (such that contaminated groundwater is expected to remain within the “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 vertical migration of the vinyl chloride groundwater impact identified in temporary monitoring well MW-1 is limited to a depth of approximately 30 feet below grade where a stiff to tough silty clay and shale aquiclude are present. That aquiclude extends to a depth of 130 below ground surface or deeper. To determine the horizontal extent of the vinyl chloride groundwater quality impact, the U.S. EPA BIOCHLOR screening model, which simulates attenuation of dissolved chlorinated solvents in groundwater, was used. Results of the BIOCHLOR model indicate that the identified vinyl chloride groundwater quality impact of 6.57 µg/L will attenuate to achieve the MCL of 2.0 µg/L at a distance of 150 feet downgradient (east – southeast) of temporary monitoring well MW-1 location.

The BIOCHLOR model data inputs, results and supporting information for data input justification, including references, is attached. Figure 1, also attached, shows the locations of temporary monitoring well used to determine groundwater quality and the attenuation zone at which point the vinyl chloride groundwater quality impact will achieve the MCL relative to surrounding facility and area features.

Given that the facility ceased operations in 2005, was decommissioned and has remained idle since 2006, there is no reason to suspect that there is a continual source area contributing to the observed vinyl chloride groundwater quality impact. Vinyl chloride is also one of the last breakdown byproducts from degradation of other chlorinated hydrocarbons that may have been released on or near the property.

Groundwater Quality Assessment Report, prepared by Continental Placer Inc., and dated June 29, 2011.

4. Does contaminated groundwater discharge into surface water bodies?

- ☐ If yes - continue after identifying potentially affected surface water bodies.
- ☒ X If no - skip to #7 (and enter a “YE” status code in #8, if #7 = yes) after providing an explanation

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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 6

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):

The nearest surface water body is Eagle Creek located approximately 1,200 feet east of the facility. Based on the BIOCHLOR model discussed in question 3, the maximum vinyl chloride concentration of 6.57 µg/L detected at temporary groundwater monitoring well MW-1 will attenuate and meet the MCL at a distance of 150 feet east of the well. Therefore, groundwater that may discharge from the facility into Eagle Creek will not contain vinyl chloride in excess of the MCL.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 7

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 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 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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 8

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 cannot 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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)

Page 9

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):

Additional and/or future groundwater monitoring is not necessary at the facility for the following reasons:

1. There is no existing source area of chlorinated solvents known to be present. The facility has not operated since 2005, and the property has remained idle since that time.
2. The maximum concentration of vinyl chloride identified in downgradient groundwater was 6.57 µg/L. No other contaminants of concern (VOCs, SVOC, RCRA metals or PCBs) were identified in downgradient groundwater samples in excess of the Indiana Department of Environmental Management's Default Residential Closure Values as well as other applicable promulgated standards.
3. The facility was never issued a RCRA permit and there are no known releases of hazardous substances or waste subject to RCRA corrective action as a result of facility operations. Therefore, no groundwater monitoring well network is presently in place to be sampled.
4. Vinyl chloride is the final breakdown compound in the reductive dechlorination process. Use of the U.S. EPA BIOCHLOR fate and transport model has shown that the maximum vinyl chloride concentration of 6.57 µg/L will attenuate and achieve the MCL of 2.0 µg/L at a distance of 150 feet from the source area (temporary groundwater monitoring well MW-1).
5. Groundwater is not used as a potable water supply in the area of the facility. As such, there are no potential human receptors at risk to exposure of the identified adverse groundwater quality. Property directly downgradient (east) of the facility is of industrial/commercial use and includes an inactive industrial landfill. Records indicate the presence of a water supply well east of the facility associated with the Truck Trailer Depot property. However, it has not been confirmed as to whether the well is present and remains in use. Record from the Indiana Department of Natural Resources indicates the well is completed in bedrock at a depth of 130 feet below ground surface, which is significantly below the overlying shallow sand and gravel aquifer where the vinyl chloride was identified in excess of the MCL. The shallow aquifer terminates at approximately 40 feet below ground surface where a silty clay and shale bedrock confining layer are present (Groundwater Quality Assessment Report; CPI June 29, 2011). Furthermore, the BIOCHLOR model indicates that the groundwater quality impact identified at the temporary well MW-1 will attenuate to the MCL prior to reaching the Truck Trailer Depot supply well (see attached Figure 1).
6. The source of the vinyl chloride groundwater quality impact may be related to a documented waste pile issue on the north adjacent former foundry waste water treatment plant property. Chlorinated solvents were historically identified in a monitoring well network installed at that location. Recent work by CPI has resulted in the issuance of a total closure certification letter by IDEM for the waste pile issue. As part of IDEM's closure requirements, U.S. EPA granted approval for the proper abandonment of the groundwater monitoring well network at the former

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 10

waste water treatment plant property. The monitoring well network on the adjacent waste water treatment plant property was subsequently abandoned on October 26, 2011.

7. There are no existing or reasonably anticipated exposures through cross-media transfer including volatilization into buildings and hydraulic connection to surface water (Eagle Creek).
8. Future use of the facility has been approved by the City of Indianapolis as a self-serve automobile retail parts and salvage operation. Groundwater will not be used as part of the planned future use of the property.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA750)
Page 11

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 Chrysler facility, EPA ID # IN 087 032 6111 located at 1100 South Tibbs Avenue in Indianapolis, Indiana. Specifically, this determination indicates that the migration of "contaminated" groundwater is under control. 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)

(print)

(title)

Jonathan Adenuga

Project Manager

Date

6/4/13

Supervisor

(signature)

(print)

(title)

(EPA Region or State)

Tammy Moore

Chief, Corrective Action, Section 2

5

Date

6/4/13

Locations where References may be found:

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