**DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION**

**RCRA Corrective Action**
**Environmental Indicator (EI) RCRIS code (CA725)**

**Current Human Exposures Under Control**

| | |
|---|---|
| **Facility Name:** | Delphi Harrison Thermal Systems |
| **Facility Address:** | 3600 Dryden Road, Moraine, OH 45439 |
| **Facility EPA ID #:** | OHD 000 817 577 |

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, 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 #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 "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "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 "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

### 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).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**[1] above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

| | Yes | No | ? | Rationale / Key Contaminants |
|---|---|---|---|---|
| Groundwater | X | | | VOCs |
| Air (indoors)[2] | | X | | |
| Surface Soil (e.g., <2 ft) | X | | | VOCs, SVOCs, PCBs, metals |
| Surface Water | X | | | VOCs, metals |
| Sediment | X | | | Metals |
| Subsurf. Soil (e.g., >2 ft) | X | | | VOCs, SVOCs, PCBs, metals |
| Air (outdoors) | | X | | |

____ If no (for all media) - skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

__X__ If yes (for any media) - continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk), and referencing supporting documentation.

____ If unknown (for any media) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Groundwater: Based on the results from the RCRA Facility Investigation (RFI) and Interim Measures (extraction of contaminated groundwater at wells TW-2 and DN-13), concentrations of some VOCs in groundwater are higher than maximum contaminant levels (MCLs) at some locations in the upper and lower aquifers underlying the Delphi Harrison Thermal facility.

Air (indoors): The plant building has been demolished. Therefore, contamination in soil and shallow groundwater is not underlying any building.

Surface and subsurface soil: Some VOC, SVOC, PCB and metal constituents are present in surface and subsurface soils from the SWMUs below at concentrations that exceed U.S. EPA Region 9 Preliminary Remediation Goals (PRGs) for industrial land use (PRGs have been developed by Region 9 based on the most current toxicological and risk assessment information):

- Underground storage tanks: South and West Tank Farms, T04, T05/T06, T11and T12.
- Waste Pile/Staging Area (management of metal grinding sludge)
- Former liquid Waste Burner (incineration of spent solvents and oil)

- Former fill area (incineration products).
- Landfills L1, L2 and L3 (built prior to 1980 in no accordance with RCRA subtitle C requirements).

---

[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 appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

Surface water and sediments: Results from surface water and sediment sampling at the facility's drainage ditch indicated detection of some VOC and metal constituents. There are no generic screening levels available for sediments and surface water. For the purpose of answering this question, it is assumed that contamination for VOCs and metals exists in surface water and sediments from the drainage ditch.

Air outdoors: The RFI results do not indicate the presence of releases of hazardous constituents into outdoor air. Note: the evaluation of soil contamination considers an inhalation pathway.

In addition to the above, contamination is found in two hazardous waste surface impoundments (North and South Settling Lagoons) subject to closure under OEPA regulations.

A figure of the site is attached.

[Note: VOC = volatile organic compounds, SVOC = semi-volatile organic compounds, PCB = polychlorinated biphenyls, OEPA = Ohio Environmental Protection Agency]

3. Are there **complete pathways** between "contamination" and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

| **"Contaminated" Media** | Residents | Workers | Day-Care | Construction | Trespassers | Recreation | Food[3] |
|---|---|---|---|---|---|---|---|
| Groundwater | No | Yes | No | Yes | No | No | No |
| ~~Air (indoors)~~ | | | | | | | |
| Soil (surface, e.g., <2 ft) | No | Yes | No | Yes | No | No | No |
| Surface Water | No | Yes | No | Yes | No | No | No |
| Sediment | No | Yes | No | Yes | No | No | No |
| Soil (subsurface e.g., >2 ft) | No | Yes | No | Yes | No | No | No |
| ~~Air (outdoors)~~ | | | | | | | |

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

____ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

__X__ If yes (pathways are complete for any "Contaminated" Media - Human Receptor

[3]Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

combination) - continue after providing supporting explanation.

____ If unknown (for any "Contaminated" Media - Human Receptor combination) - skip to #6 and enter "IN" status code.

Rationale and Reference(s):

Groundwater: There is a potential that industrial process water obtained from industrial wells in the lower aquifer at the adjacent Moraine Engine and Moraine Assembly plants may be used at the Delphi Harrison Thermal facility (e.g., conducting watering for dust suppression during demolition/construction operations, or miscellaneous maintenance activities). Therefore, workers could be exposed to contamination in process water through dermal contact and inhalation. Also, there are incomplete pathways for exposure to contaminated groundwater through drinking due to the following:

- Upper aquifer-- It is predicted that the migration of groundwater contamination, if uncontrolled, may cause concentrations in groundwater from the upper aquifer to exceed MCLs at the Dryden Road North and South well fields. However, the migration of contaminated groundwater from the facilities is currently controlled. Also, these well fields are considered non-primary emergency drinking water supplies and are not currently scheduled for use. In addition, the groundwater from the upper aquifer at the Moraine Engine and Moraine Assembly facilities is not used for drinking or for any other purpose.

- Lower aquifer-- Groundwater contamination is predicted to cause concentrations in groundwater from the lower aquifer to exceed MCLs at the industrial wells from the Moraine Engine and Moraine Assembly facilities even if the migration of contaminated groundwater is controlled. Groundwater from these wells is not used for drinking at the facilities.

Soil: Workers can be exposed to contamination in surface and subsurface soils as part of activities such as building demolition, parking lot construction and maintenance. Access to trespassers is unlikely because the site has a very strict gate system. No day-care, recreation or food-producing activities.

Surface water and sediments: Exposure to workers from contamination in surface water and sediments from the drainage ditch is possible.

In addition, the hazardous waste surface impoundments have been closed in accordance with OEPA regulations (OEPA issued approval of closure certification on June 27, 2002). Therefore, exposure to workers from contamination in soils at the hazardous waste surface impoundments is not expected.

In addition, the facility is conducting additional soil and groundwater sampling in the Waste Pile/Staging Area to determine extent of VOC, SVOCs, PCBs and metal contamination. However, exposure to workers in not anticipated because this area is covered by a concrete pad.

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **"significant"**[4] (i.e., potentially "unacceptable" because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable

[4]If there is any question on whether the identified exposures are "significant" (i.e., potentially "unacceptable") consult a human health Risk Assessment specialist with appropriate education, training and experience.

"levels" (used to identify the "contamination"); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable "levels") could result in greater than acceptable risks)?

X If no (exposures can not be reasonably expected to be significant (i.e., potentially "unacceptable") for any complete exposure pathway) - skip to #6 and enter "YE" status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If yes (exposures could be reasonably expected to be "significant" (i.e., potentially "unacceptable") for any complete exposure pathway) - continue after providing a description (of each potentially "unacceptable" exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to "contamination" (identified in #3) are not expected to be "significant."

____ If unknown (for any complete pathway) - skip to #6 and enter "IN" status code

Rationale and Reference(s):

Groundwater
No significant exposures are expected from dermal contact or inhalation by workers related to contaminated groundwater from the lower aquifer. This is because VOC concentrations in groundwater do not exceed Occupational Safety and Health Association (OSHA) Permissible Exposure Limits (PELs).

Soil
Although concentrations of some contaminants in soil exceed PRGs, exposures are not expected to be significant because site-specific values are not exceeded as further explained. High-end cumulative cancer risks for all the above SWMUs were calculated for the following scenarios for soil: routine industrial, excavation and groundskeeping assuming industrial land use. The highest risk was identified under the groundskeeping/inhalation scenario for $2 \times 10^{-7}$. High-end hazard indexes were also calculated. The hazard index was higher for the groundskeeping/ingestion scenario which was calculated as $1 \times 10^{-2}$. For further information refer to Baseline Risk Assessment Report. The above calculations indicate that there are no significant exposures since the value for an acceptable cancer risk is $1 \times 10^{-4}$ and a hazard index of less than 1.

Surface water and sediments
Exposure to workers from contamination found in the drainage ditch is considered negligible based on the schedule of activities at the site (e.g., maintenance/construction activities at or around the drainage ditch are expected to be intermittent).

5. Can the "significant" **exposures** (identified in #4) be shown to be within **acceptable** limits?

____ If yes (all "significant" exposures have been shown to be within acceptable limits) - continue and enter "YE" after summarizing and referencing documentation justifying why all "significant" exposures to "contamination" are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

____ If no (there are current exposures that can be reasonably expected to be "unacceptable")- continue and enter "NO" status code after providing a description of each potentially "unacceptable" exposure.

____ If unknown (for any potentially "unacceptable" exposure) - continue and enter "IN" status code

Rationale and Reference(s):

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

YE - Yes, "Current Human Exposures Under Control" has been verified. Based on a review of the information contained in this EI Determination, "Current Human Exposures" are expected to be "Under Control" at the Delphi Harrison Thermal Systems (OHD 000 817 577), located in Moraine, Ohio under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.

____ NO - "Current Human Exposures" are NOT "Under Control."

____ IN - More information is needed to make a determination.

Completed by (signature) _____ Date 09-05-02
(print) Mirtha Capiro
(title) Environmental Scientist

Supervisor (signature) _____ Date 09-05-02
(print)
(title)
(EPA Region or State)

Locations where References may be found:

U.S. EPA Record Center, 77 West Jackson Blvd., 7th Floor, Chicago, Illinois 60604.

Contact telephone and e-mail numbers

(name) Mirtha Capiro
(phone #) 312/ 886-7567
(e-mail) capiro.mirtha@epa.gov

**FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.**