

US EPA ARCHIVE DOCUMENT

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Interim Final 2/5/99

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

Current Human Exposures Under Control

Facility Name: General Motors Powertrain-Defiance Foundry

Facility Address: 26427 State Route 281 East, Defiance, Ohio

Facility EPA ID #: OHD 005 050 273

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 AIN (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 ACurrent Human Exposures Under Control@ EI

A positive ACurrent Human Exposures Under Control@ EI determination (AYE@ status code) indicates that there are no Aunacceptable@ human exposures to Acontamination@ (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 Acontamination@ 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 ACurrent 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).

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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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater		X		
Air (indoors)		X		
Surface Soil (e.g., <2 ft)	X			chloroform, 1,1-dichloroethene
Surface Water		X		
Sediment	X			arsenic, lead
Subsurf. Soil (e.g., >2 ft)	X			chloroform, 1,1-dichloroethene
Air (outdoors)		X		

— ²If no (for all media) - skip to #6, and enter AYE,@ 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):

The risk-based screening criteria used for soil/sediment are those of Region 9 PRG’s for industrial soil calculated at a Target Cancer Risk (CR) of 1 E-5 and a Target Hazard Quotient (HQ) = 1. Comparison of the data with these screening criteria shows that chloroform and 1,1-dichloroethene have concentrations in surface and subsurface soil under the plant floor near the building footer at AOI 20 that are higher than the screening criteria. These concentrations remain after interim measures to remove free product and contaminated soil. A second interim measure resulted in the removal of PCB-contaminated soil.

The concentrations of arsenic and lead in sediment samples at AOI’s 5 and 6, respectively, are also higher than the screening criteria.

The screening criteria for the upper aquifer are MCL’s or Drinking Water Equivalent Levels (DWEL) at a CR of 1 E-5 and a HQ = 1.

The perched groundwater is not used as a drinking water supply or for any other

¹ AContamination@ and Acontaminated@ 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 Alevels@ (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.

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purpose, therefore screening against MCLs is not appropriate. This aquifer may, however discharge to the Maumee River. Screening levels were calculated to account for this discharge. Concentrations detected in the shallow aquifer are compared to groundwater screening criteria calculated to account for groundwater mixing with surface water in the Maumee River.

No constituents in both groundwater aquifers have concentrations higher than the screening criteria.

The surface water on-site is due to stormwater management units and a ditch. Specific screening levels were calculated for this medium because the exposure is unusual in that it involves worker exposure to surface water. Comparison of detected concentrations to calculated screening levels revealed no exceedences.

Indoor air quality in the room above AOI 20 is not impacted due to the use of an epoxy coating on the floor which prevents vapor intrusion. Outdoor air quality is not impacted.

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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	-	-	-	-			
Air (indoors)	-	-	-				
Soil (surface, e.g., <2 ft)	NO	NO	NO	YES	NO	NO	NO
Surface Water	-	-			-	-	-
Sediment	NO	YES			NO	NO	NO
Soil (subsurface e.g., >2 ft)				YES			NO
Air (outdoors)	-	-	-	-	-		

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors= spaces for Media which are not Acontaminated@ as identified in #2 above.
2. enter Ayes@ or Ano@ for potential Acompleteness@ under each AContaminated@ Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential AContaminated@ Media - Human Receptor combinations (Pathways) do not have check spaces (A____@). 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 AContaminated@ Media - Human Receptor combination) - continue after providing supporting explanation.

— If unknown (for any AContaminated@ Media - Human Receptor combination) - skip to #6 and enter AIN@ status code.

— Rationale and Reference(s):

Workers will not be exposed to surface and subsurface soil contamination due to the presence of a building above the contaminated area. Workers may be exposed to sediment during

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

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routine maintenance.

The site is fenced, preventing access by trespassers.

Construction workers may encounter surface and subsurface soil if excavation under the building at AOI 20 were done.

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **Asignificant**⁴ (i.e., potentially **Aunacceptable** 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 **Alevels** (used to identify the **Acontamination**); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable **Alevels**) could result in greater than acceptable risks)?

- ☒ If no (exposures can not be reasonably expected to be significant (i.e., potentially **Aunacceptable**) for any complete exposure pathway) - skip to #6 and enter **AYE** status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to **Acontamination** (identified in #3) are not expected to be **Asignificant**.
- ☐ If yes (exposures could be reasonably expected to be **Asignificant** (i.e., potentially **Aunacceptable**) for any complete exposure pathway) - continue after providing a description (of each potentially **Aunacceptable** exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to **Acontamination** (identified in #3) are not expected to be **Asignificant**.
- ☐ If unknown (for any complete pathway) - skip to #6 and enter **AIN** status code

Rationale and Reference(s):

The potential exposure to chloroform and 1,1-dichloroethene in soil at AOI 20 is not significant. This area is under a building.

The mean lead concentration in sediment from the RFI samples at AOI 6 does not represent a significant exposure when the difference between the conservative, estimated exposure frequency used in deriving the screening criterion and the actual exposure frequency of workers performing maintenance in that area is taken into account.

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

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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 **AYE** 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 **ANO** status code after providing a description of each potentially **unacceptable exposure**.
- If unknown (for any potentially **unacceptable exposure**) - continue and enter **AIN** status code

Rationale and Reference(s):

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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 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 General Motors Powertrain Defiance facility,
EPA ID # OHD 005 050 273, located in Defiance County, 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 _____
 (print) Gary Cygan _____
 (title) Project Manager, U.S. EPA _____

Supervisor (signature) _____ Date _____
 (print) _____
 (title) _____
 (EPA Region or State) _____

Locations where References may be found:

U.S. EPA Region 5, General Motors Powertrain, Defiance Facility
7th floor Records Center
77 W. Jackson Blvd., Chicago, IL 60604

Contact telephone and e-mail numbers

(name) Gary Cygan _____
(phone #) 312 886 5902 _____
(e-mail) cygan.gary@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.