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DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

Current Human Exposures Under Control

Facility Name:	General Motors Powertrain Group Moraine Engine Plant	General Motors North American Truck Platforms Moraine Assembly Plant
Facility Address:	4100 Springboro Road, Moraine, OH 45439	2601 Stroop Road, Moraine, OH 45439
Facility EPA ID #:	OHD 980 569 388	OHD 041 063 074

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)?

3.

	Yes	No	?	Rationale / Key Contaminants
Groundwater	X			PCE, TCE, DCE, VC
Air (indoors)[2]		X		
Surface Soil (e.g., <2 ft)	X			PAHs, PCBs, As, Pb
Surface Water		X		
Sediment		X		
Subsurf. Soil (e.g., >2 ft)	X			PAHs, PCBs, As, Pb
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, concentrations of some VOCs in groundwater are higher than maximum contaminant levels (MCLs) at some locations in the upper and lower aquifers underlying these facilities and the Delphi Thermal facility.

Surface and subsurface soil

Concentrations of some SVOCs, PCBs and metals in surface and subsurface soil at some SWMUs and Areas of Interest (AOIs) exceed Preliminary Remediation Goals (PRGs) for industrial scenarios (AOI 34 and AOI 36). PRGs are chemical concentrations that correspond to a target risk of one-in-one million cancer risk or a noncarcinogenic hazard quotient of one. PRGs have been developed by U.S. EPA, Region 9 based on the most current EPA toxicological and risk assessment information.

Refer to attached site diagrams from Figures 1-1 and1-2.

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[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.

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[Notes: PCE=tetrachloroethene, TCE=trichloroethene, DCE=dichloroethene, VC=vinyl chloride, PAHs=polycyclic aromatic hydrocarbons, PCBs=polychlorinated biphenyls, As=arsenic, Pb=lead]

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	No			No
Air (indoors)	No	No	No				
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No
~~Surface Water~~							
~~Sediment~~							
Soil (subsurface e.g., >2 ft)				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 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):

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

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

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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.

There are incomplete pathways for surface and subsurface soils at the areas below. It is noted that a risk assessment conducted for the facilities included complete pathways for these areas based on scenarios that were more conservative than real situations. The results of the risk assessment indicated that no significant risk to workers is anticipated (risk levels from exposure to contaminated surface and subsurface soils were within the acceptable range of one-in-one million and one-in-ten-thousand for cancer risk and hazard indices were less than one for noncarcinogens).

- Fill Area, AOI 34 (former excavation area) and AOI 36 (former above storage tank area)-- These areas are currently covered by asphalt parking lots. Therefore, there is no exposure to workers from contaminated surface and subsurface soils and trespassers will not be exposed to contamination from surface soils.

The only complete pathway at the facilities consists of the exposure to contaminated groundwater (lower aquifer) by workers through dermal contact and inhalation. This exposure is associated with the use of industrial wells at the Moraine Engine and Moraine Assembly facilities.

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 "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."

[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.

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

Rationale and Reference(s):

The contaminated groundwater from the lower aquifer that the workers may be exposed to through dermal contact or inhalation do not exceed Occupational Safety and Health Association (OSHA) Permissible Exposure Limits. Therefore, any exposure to workers can be considered insignificant.

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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 "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):

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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 Group Moraine Engine Plant (OHD 980 569 388) and General Motors Truck Group Moraine Assembly Plant (OHD 041 063 074), 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 _____
(print) Mirtha Capiro
(title) Environmental Scientist

Supervisor (signature) _____ Date _____
(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

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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.

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