

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: Former General Motors Corporation Livonia Powertrain Site
Facility Address: 12200 Middlebelt Road, Livonia, Wayne County, Michigan
Facility EPA ID #: MID 000 718 874

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).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 2

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		See Rationale and Reference Section Below.
Air (indoors) ²		X		See Rationale and Reference Section Below.
Surface Soil (e.g., <2 ft.)		X		See Rationale and Reference Section Below.
Surface water		X		Not applicable – no surface water at or near Site
Sediment		X		Not applicable – no surface water at or near Site
Subsurf. Soil e.g., >2 ft)	X			See Rationale and Reference Section Below.
Air (outdoors)		X		See Rationale and Reference Section Below.

_____ 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):

The presence of “contamination” is identified based on the assessment of regional and local background conditions, as appropriate, relative to Site characterization data for soil and groundwater samples, and the comparison of Site characterization data for soil and groundwater samples with screening criteria developed by the Michigan Department of Environmental Quality (MDEQ) to facilitate implementation of Part 201 of the Natural Resources and Environmental Protection Act, 1994 Public Act 451, as amended (MDEQ, 28 September 2012). The assessment of regional and local background conditions, and the results of the comparison of Site characterization data with the Part 201 screening criteria are discussed in Section 4 of the RCRA Facility Investigation Report (Haley & Aldrich, 15 March 2013) (RFI Report). The following Part 201 screening criteria were used to evaluate the Site characterization data:

Soil

- Part 201 Nonresidential Drinking Water Protection Criteria;
- Part 201 Nonresidential Indoor and Ambient Air Criteria; and
- Part 201 Nonresidential Direct Contact Criteria.

Groundwater

- Part 201 Nonresidential Direct Contact Criteria;
- Part 201 Nonresidential Volatilization to Indoor Air Inhalation Criteria
- Water Solubility Levels;
- Flammability and Explosivity Levels; and
- Acute Inhalation Levels.

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) suggests that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is 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

Of the soil screening criteria listed above, only the Part 201 Nonresidential Drinking Water Protections Criterion for arsenic was exceeded (two samples at two locations, but not more than two times the criteria).

Groundwater sampling was performed at the Site on two occasions, once in August 2012 and once in December 2012. The results of the first round of sampling indicated the presence of arsenic and lead in Site groundwater at concentrations exceeding corresponding Part 201 Nonresidential Drinking Water criteria.

Studies indicate that these constituents are commonly linked to the presence of sediments in the groundwater. Evidence of this is observed with respect to the initial round of Site groundwater results, as filtered sample results are lower than the unfiltered results. Specifically, in all but one case of comparable data sets in which one of these constituents were exceeded in the unfiltered sample, the corresponding filtered concentration was shown to be either "non-detect" or below criteria

In cases where constituent presence in groundwater is believed to be attributed to sediment, conditions for obtaining groundwater samples that are more representative and appropriate for risk evaluation are often improved with well surging and further purging, and the employment of ultra-low-flow sampling techniques.

In November 2012, prior to initiating the second round of groundwater sample collection, the targeted wells were carefully developed in an attempt to remove soil particles from the wells (gentle surging and low-flow purging). Following this careful development, the December 2012 groundwater samples were collected using ultra-low-flow sampling techniques, with sample withdrawal rates of 80 milliliters per minute or less), as a further measure to obtain more representative groundwater samples.

Upon comparing corresponding data for the August 2012 groundwater sampling event to the December 2012 groundwater sampling event, it is observed that in most cases, the concentrations of arsenic increased slightly within the relative same order of magnitude on a well-to-well comparison. It is further observed that lead exceeded the noted criteria in the samples collected in August 2012; however, lead was not detected in the groundwater samples collected from these wells in December 2012. It is believed that the sampling methods, including careful well development techniques and ultra-low-flow sampling, employed in as part of the December 2012 event produced data most representative of Site conditions.

The December 2012 data indicate Site groundwater is not contaminated with lead above the associated screening criterion; and all but one unfiltered groundwater sample exceeded the Nonresidential Drinking Water Criterion for arsenic. However, the concentrations of arsenic detected in groundwater are believed to be present as a result of natural conditions (i.e., types of soil deposits), and are not believed to be attributed to Site operations based on the following points:

- *Arsenic is not known to have been used at the Site, nor is it likely to have been a component of Site-related activities;*
- *All but one arsenic exceedance of Nonresidential Drinking Water Criteria are associated with unfiltered samples, indicating the presence of arsenic in Site groundwater is associated nearly exclusively with filterable soil particulates;*
- *Variability of arsenic concentrations between sampling events and among samples of each event is low (i.e. similar order of magnitude on a well-to-well comparison);*
- *All exceedances of Nonresidential Drinking Water Criteria for arsenic are within the collective range of concentrations typical of well water of Wayne County and the adjacent Washtenau County (greater than 0.05 mg/L), as described in MDEQ public outreach information³.*

³ http://www.michigan.gov/documents/deq/deq-wd-gws-wcu-arsenicwellwater_270592_7.pdf.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 4

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

	<u>Potential Human Receptors (Under Current Conditions)</u>						
	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food</u> ⁴
Groundwater	—	—	—	—	—	—	—
Air (indoors) ²	—	—	—	—	—	—	—
Surface Soil (e.g., <2 ft.)	—	—	—	—	—	—	—
Surface water	—	—	—	—	—	—	—
Sediment	—	—	—	—	—	—	—
Subsurf. Soil e.g., >2 ft)	No	No	No	No	No	No	No
Air (outdoors)	—	—	—	—	—	—	—

Instructions for Summary Exposure Pathway Evaluation Table:

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

 X 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).

 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):

As discussed in Section 5 of the RFI Report, the only potential pathways of concern involving contaminated media at the Site include the potable use of groundwater at or in the vicinity of the Site (i.e., on-site and off-site routine workers, maintenance workers, and construction, as well as local residents and Site trespassers).

Currently there is no evidence of exposure as these pathways are incomplete due to the following reasons:

- No current use of groundwater at the Site;
- Drinking water is supplied to the Site and the surrounding area by the City of Livonia through the Detroit Water and Sewage Department, with the ultimate source of drinking water to the Site being the Detroit River;
- No water wells present within ½-mile radius of the Site;

⁴ Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

Page 5

- *The City of Livonia prohibits groundwater well installations and potable use of groundwater through its City Ordinance 13.40.030 (Ord. 2823, § 1, 2009);*
- *Wayne County requires permits to be issued for all drinking water well installation; and*
- *The State of Michigan requires licensure of all groundwater well drillers operating in the State.*

As such there is no evidence of exposure at the Site.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 6

4. Can the exposures from any of the complete pathways identified in #3 be reasonably expected to be "significant"⁵ (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)?

_____ If no (exposures cannot 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):

Not applicable.

⁵ 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.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 7

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):

Not applicable.

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 8

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 Former General Motors Corporation Livonia Powertrain facility, EPA ID # MID000718874, located at 12200 Middlebelt Road, Livonia, Wayne County, Michigan 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."

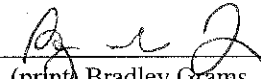
☐ IN - More information is needed to make a determination.

Completed by


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Date 3/5/14

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Date 3/10/2014

Locations where References may be found:

Livonia Civic Center Library
32777 5 Mile Road
Livonia, Michigan 48154
Attention: Mr. Carl Katafiasz
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Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)
Page 9

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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.

