

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: Harley-Davidson Motor Company
Facility Address: 1425 Eden Road, York PA 17402
Facility EPA ID #: PAD001643691

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?

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).

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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			Chlorinated VOCs
Air (indoors) ²	X			Chlorinated VOCs
Surface Soil (e.g., <2 ft)	X			Chlorinated VOCs, heavy metals
Surface Water	X			Trichloroethene, tetrachloroethene
Sediment	X			Chlorinated VOCs
Subsurf. Soil (e.g., >2 ft)	X			Chlorinated VOCs, heavy 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): see next page

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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Groundwater

Based on the September 2011 Supplemental Remedial Investigation Groundwater Report (Part 1), primary contaminants exceeding MCLs include trichloroethene (TCE), tetrachloroethene (PCE), trichloroethane (TCA), and cis-1,2-dichloroethene (DCE). These contaminants have been found at concentrations exceeding 1000 ug/L in various areas of the facility.

Indoor Air

The March 2005 Indoor Air Vapor Pathway Screening Assessment documented that PCE and TCE concentrations in groundwater and soil gas exceeded generic target concentrations considered protective of indoor air quality; therefore, indoor air is reasonably expected to be contaminated above risk-based levels.

Soil

Based on the December 2009 Supplemental Remedial Investigation Soils Report, chlorinated solvents, heavy metals, and, to a lesser extent, certain polycyclic aromatic hydrocarbons and poly-chlorinated biphenyls, exceed EPA's Industrial Soil RSLs. In general, fewer contaminants and lower contaminant concentrations are found in surface soils and the East Campus than in subsurface soils and the West Campus.

Surface Water

Sampling of Codorus Creek both prior to and during a groundwater treatment system shutdown study from 2013 to 2014 has confirmed that discharge of contaminated groundwater to surface water is occurring and impacts at least one specific area of Codorus Creek with levels of TCE and PCE above Ambient Water Quality Criteria.

Sediment

It is unknown at this time whether sediment is contaminated, as recent sampling has not been performed; however, due to the demonstrated impact of contaminated groundwater to surface water and the capacity of organic contaminants to preferentially sorb to soil, it is reasonably suspected that sediment in at least one specific area of Codorus Creek is contaminated with TCE and PCE.

Outdoor Air

Available data suggests that outdoor air is not reasonably suspected to be contaminated above risk-based levels protective of human health.

References

Indoor Air Vapor Pathway Screening Assessment – Supplemental RI Report, Langan, March 2005.
Supplemental Remedial Investigation Soil Report, SAIC, December 2009.
Supplemental Remedial Investigation Groundwater Report (Part 1), Groundwater Sciences Corp., September 2011.
Codorus Creek Discharges Sampling Results – 8/22/13 Through 6/6/14, Groundwater Sciences Corp.

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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

Contaminated Media	Potential Human Receptors (Under Current Conditions)						
	<u>Residents</u>	<u>Workers</u>	<u>Day-Care</u>	<u>Construction</u>	<u>Trespassers</u>	<u>Recreation</u>	<u>Food³</u>
Groundwater	Yes	No	No	Yes	No	No	No
Air (indoors)	Yes	Yes	No	Yes	No	No	No
Soil (surface, e.g., <2 ft.	No	Yes	No	Yes	Yes	No	No
Surface Water	No	No	No	No	Yes	Yes	Yes
Sediment	No	No	No	No	Yes	Yes	Yes
Soil (subsurface e.g., >2 ft.	No	No	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 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):

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

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Groundwater

Although the few remaining private wells in the vicinity of the facility are no longer used for potable use, residents using private wells may still be exposed to contaminated groundwater via direct contact. Construction workers could be exposed to contaminated groundwater via direct contact during intrusive activities.

There are no day-care operations in the vicinity of the facility. Workers are not exposed to groundwater contamination as groundwater is not used at the facility. Exposure to contaminated groundwater is not reasonably expected for trespassers, recreational receptors, and food sources.

Indoor Air

Nearby residents and workers at the facility may be exposed to indoor air contaminated via vapors migrating from soil and/or groundwater contamination. Construction workers may be exposed to contaminated air when working in a confined space such as trenching activities. Trespassers, recreational receptors, and food sources are not reasonably expected to be exposed to indoor air.

Soil

Workers, construction workers, and trespassers may be exposed to surface soil contamination via direct contact or inhalation of dust particles. Construction workers may be exposed to subsurface soil contamination via direct contact, incidental ingestion, or inhalation of dust particles during excavation activities. Residents, recreational receptors, and food sources have no significant exposure to soil contamination at the facility. Workers and trespassers are not expected to be exposed to subsurface soil.

Surface Water and Sediment

Trespassers, recreational receptors, and food sources may be exposed to contaminated surface water and sediment via direct contact or incidental ingestion. No other human receptors are expected to have significant exposure to surface water and sediment.

References

Indoor Air Vapor Pathway Screening Assessment – Supplemental RI Report, Langan, March 2005.
Supplemental Remedial Investigation Groundwater Report (Part 1), Groundwater Sciences Corp., September 2011.
Soils Risk Assessment, Groundwater Sciences Corp., March 2012.

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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.”

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

Rationale and Reference(s):

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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Groundwater

Residential direct contact exposures to groundwater for non-potable uses are not expected to be of a duration and frequency that would constitute a significant exposure. It is expected that construction workers engaging in intrusive activities would wear appropriate protective equipment and follow safe work practices to minimize exposure to impacted groundwater.

Indoor Air

Indoor air modeling performed in 2005 suggested that indoor air exposures were insignificant. Due to recent changes in vapor intrusion investigative procedures and TCE toxicity, in 2014 EPA requested a reevaluation of this pathway for nearby residential receptors. Results from this reevaluation demonstrated that contaminant concentrations in groundwater from wells installed within the residential development southeast of the facility do not exceed EPA's vapor intrusion screening levels; however, potential impact to residences located between these wells and the facility could not be ruled out. Therefore, additional investigation was conducted and the groundwater extraction system was extended to the southeast corner of the facility in 2018 to ensure contamination would not migrate beneath residences at concentrations that could present a potential vapor intrusion risk. Worker exposures to indoor air contamination are not expected to be significant since presently-occupied buildings are not located over areas of heavy soil or groundwater contamination. While construction workers could be exposed to contaminated air during trenching activities, it is expected that appropriate protective equipment and safe work practices would be followed to minimize this potential exposure.

Soil

As documented in the March 2012 Soils Risk Assessment, there are no unacceptable exposures to soil at the facility under current and future land use assumptions.

Surface Water and Sediment

Under the currently operating groundwater extraction system that was restarted in January 2015 (with extraction wells CW-9, CW-13, CW-15A, CW-17, and CW-20 active), concentrations of all chlorinated volatile organics have been below Pennsylvania's Water Quality Criteria at all seven surface water monitoring locations. Some evidence exists that significant storm events may overwhelm the groundwater extraction system and lead to a spike in groundwater contaminant concentrations being discharged to surface water. However, it is anticipated that storms significant enough to overwhelm the groundwater extraction system are relatively rare and of a short duration, resulting in a brief discharge of elevated contaminant concentrations that are likely to be quickly diluted in the higher and more turbulent flow of Codorus Creek immediately after a significant storm; therefore, even under these circumstances, discharge of contaminated groundwater into surface water is likely to be insignificant. Given that primary contaminants are volatile and do not bioaccumulate, food source (fish) exposures to surface water or sediment contamination are likely to be insignificant. Exposures to trespassers and recreational receptors are not expected to be of sufficient duration to constitute a significant exposure to surface water or sediment contamination.

References

Indoor Air Vapor Pathway Screening Assessment – Supplemental RI Report, Langan, March 2005.
Supplemental Remedial Investigation Groundwater Report (Part 1), Groundwater Sciences Corp., September 2011.
Soils Risk Assessment, Groundwater Sciences Corp., March 2012.
Codorus Creek Discharges Sampling Results – 8/22/13 Through 6/6/14, Groundwater Sciences Corp.
Southern Property Boundary Area Vapor Intrusion Investigation, Groundwater Sciences Corp., July 2015.
Supplemental Remedial Investigation Groundwater Report (Part 2), prepared by Groundwater Sciences Corporation, August 2016, revised March 2018.
Southern Property Boundary/South Plume Areas Supplemental Remedial Investigation and Interim Groundwater Remediation Report, Groundwater Sciences Corp., November 2018.

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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):

 X 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 **Harley-Davidson Motor Company** facility, EPA ID # **PAD001643691** , located at **1425 Eden Road, York PA 17402** 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) /Griff E. Miller/ Date 9/4/19
(print) Griff Miller
(title) Remedial Project Manager

Supervisor (signature) /Paul Gotthold/ Date 9/6/19
(print) Paul Gotthold
(title) Chief, Corrective Action Branch 2
(EPA Region or State) EPA Region 3

Locations where References may be found:

USEPA Region III
Land and Chemicals Division (3LD20)
1650 Arch Street
Philadelphia, PA 19103

PADEP
South Central Regional Office
909 Elmerton Ave.
Harrisburg, PA 17110

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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.