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, Pennsylvania 17402
Facility EPA ID #: PAD 001 643 691

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			Sse Rationale and Reference(s) below
Air (indoors)[2]	X			"
Surface Soil (e.g., <2 ft)	X			"
Surface Water		X		"
Sediment		X		"
Subsurf. Soil (e.g., >2 ft)	X			"
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):

Unless otherwise noted, " risk based levels" are EPA Region III Risk Based Concentrations (RBCs) and/or Pennsylvania Act 2 Medium-Specific Standards (MSCs). RBCs in this case correspond to a level indicative of an incremental carcinogenic risk of 10-5 and/or a Hazard Index of 1. In addition, unless otherwise noted, the source of analytical data for environmental media is a Soil Sampling Report for Sitewide RI/FS (Langan, 4/2000) as generated per a Field Sampling Plan for Sitewide RI/FS(Langan, 3/98).

Groundwater

Substances detected in groundwater at levels exceeding Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act and attributable to releases at the facility include, but are not limited to, trichloroethylene (TCE), tetrachloroethylene (PCE), vinyl chloride, chromium (hexavalent) and cyanide (see 2004 Key Well Sampling Report (SAIC, 9/2004)).

Air (Indoors)

Based on consideration of available groundwater data (e.g., 2004 Key Well Sampling Report (SAIC, 9/2004)) and Draft EPA Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway from Groundwater and Soils (11/02), an Indoor Vapor Pathway Screening Assessment (Langan, 3/2005) has been performed for the facility. A Tier II Preliminary Screening Assessment of Groundwater Concentrations (performed per the subject guidance) found that certain volatile organic compounds (VOCs) in groundwater (e.g., TCE and PCE) exceeded generic target groundwater concentrations protective of indoor air quality (assuming target incremental carcinogenic risk of 10-5). In addition, a Tier II Vapor Intrusion Screening Assessment of Soil Vapor Concentrations found that the levels of certain VOCs in soil gas (e.g., TCE and PCE) exceeded generic target soil gas concentrations protective of indoor air quality (again, assuming a target risk of 10-5).. Based on the exceedance of the subject generic groundwater and soil gas concentrations, indoor air is reasonably suspected to be contaminated above risk-based levels. (Note: The

generic target groundwater and soil gas concentrations for TCE are based on a cancer slope factor currently under review by EPA.)

Surface Soil

The results of investigations of surface soil quality are included in a Soil Sampling Report (SAIC, 4/2000), an Expedited Investigation and Interim Remedy Evaluation for Eden Road Relocation (SAIC, 5/2004) and a Remedial Action Report of Eden Road Relocation (SAIC, 7/2005). These results indicate surface soils in the West Parking Lot SWMU, an industrial area, contain TCE, PCE, chromium (hexavalent), lead and PCBs at levels exceeding EPA RBCs for direct contact under industrial land use and PA Act 2 MSCs for direct contact in a non-residential setting. (Available sampling data for potentially impacted surface soils on adjacent property immediately west of the West Parking Lot SWMU do not indicate levels exceeding RBCs/MSCs (see Final Trip Report for July 2004 Soil Sampling Event (Tetratech, 11/4/04)).

Surface Water

The Soil Sampling Report for Sitewide RI/FS (Langan, 2000) indicate that surface water is not reasonably suspected to be contaminated above risk-based levels protective of human health.

Sediment

Based on the Soil Sampling Report for Sitewide RI/FS (Langan, 4/2000), sediment sampled to date is not contaminated above risk-based levels protective of human health.

Subsurface Soil

The results of investigations of subsurface soil quality are included in a Soil Sampling Report for Sitewide RI/FS (Langan, 4/2000), an Expedited Investigation and Interim Remedy Evaluation for Eden Road Relocation (SAIC, 5/2004) and a Remedial Action Report of Eden Road Relocation (SAIC, 7/2005). These results indicate subsurface soils at the facility contain TCE, PCE, chromium (hexavalent), and lead at levels exceeding EPA RBCs and/or PA Act 2 MSCs for industrial / non-residential use protective of direct contact pathways as well as PA Act 2 Soil-to-Groundwater MSCs protective of groundwater quality. .

Air (Outdoors)

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

Footnotes:

[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.

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

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):

Groundwater

Based on an Updated Well and Surface Water Use Survey (Langan, 3/2005), groundwater potentially downgradient of the facility is known to currently be used by residents for domestic purposes (e.g., drinking, cooking, bathing). These potential receptors are approximately 1500 feet from the facility property boundary. In this case, the pathway from contaminated groundwater to human receptors is

considered to be complete. Prior to the this survey, the facility had connected one residence and one commercial facility to public water. These connections were provided in response to investigation data which suggested that TCE released by the facility may have migrated to wells in use on these properties. In the event that the contamination was attributable to the facility, this exposure pathway has been eliminated in these cases.

Neither workers at the facility nor construction workers use onsite groundwater for drinking, cooking, or bathing purposes and there is no information which would suggest that groundwater impacted by the facility is used in the production of local food products (see letter from AMO Environmental Decisions dated 8/30/05).

Based on the Updated Well and Surface Water Use Survey (Langan, 3/2005), there are no offsite workers known or suspected to use contaminated groundwater from the facility.

Indoor Air

Based on the Indoor Vapor Pathway Screening Assessment (Langan, 3/2005), associated Tier I Preliminary Screening Assessment, Tier II Preliminary Screening Assessment and subsequent vapor pathway assessment work described in subject report, VOCs in contaminated groundwater have migrated into soil gas and are likely to migrate to the indoor air of residences and facility workers. In this case, pathway for indoor air for these receptors is considered complete. There is no information which would suggest that this pathway is complete for construction workers, day-care receptors, trespassers or recreational receptors.

Surface Soil

Based on available information, surface soils in the West Parking Lot SWMU with contaminant levels above EPA RBCs for industrial use and/or PADEP MSCs for non-residential use may not be covered and may otherwise be accessible to facility workers, construction workers and trespassers within this industrial area. In this case, there is considered to be a complete pathway between this "contamination" and these receptors such that exposures could reasonably be expected under the current industrial use conditions. There is no available information which would suggest that impacted surface soils are associated with the production of foods.

Subsurface Soil

There is a potential for exposure of facility workers and construction workers to contaminated subsurface soils under the current industrial use. In this case, the pathway is considered to be complete for these receptors. There is no available information which would suggest that impacted soils are associated with the production of foods.

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

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)?

____ 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."

__X__ 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

Groundwater

Based on the Updated Well and Surface Water Use Survey (Langan, 3/2005), recent data regarding the nature and extent of groundwater contamination (e.g., 2004 Key Well Sampling Report(9/2004), and correspondence with EPA (see EPA letters to Harley-Davidson of 3/31/05 and 6/8/05), seven offsite residential wells have been identified within 1500 feet and potentially downgradient of the impacted monitoring wells MW-64S and MW-64D. TCE and PCE were detected at 1400 ug/l and 420 ug/l, respectively, in the subject monitoring wells in 2004. The MCL for TCE and PCE is 5 ug/l. Based on this information, exposure to these compounds via use of groundwater could be reasonably expected to be significant, i.e., potentially unacceptable.

Indoor Air

As part of the Indoor Vapor Pathway Screening Assessment (Langan, 3/2005), Tier III Site-Specific Vapor Intrusion Modeling was performed to determine whether the subject exposures were reasonably likely to be significant, ie.e, potentially unacceptable. This Tier III Modeling predicted indoor air concentrations of VOCs in facility and residential indoor air based on VOC levels in soil gas and modeling via the Johnson-Ettinger Model. Model inputs were both site-specific (e.g., field-measured soil properties) as well as "default" values. Soil gas concentrations were measured next to facility buildings and of interest and at the facility boundary within 100 feet of residences. In each case, preliminary screening of soil gas levels was performed via a Membrane Interface Probe and soil gas concentrations were obtained via analysis by EPA Method TO15. Twenty-five(25) soil gas sample locations were sampled at the facility boundary and five (5) locations sampled next to facility buildings. Residential indoor air concentrations predicted by the model were compared to EPA Region III RBCs for indoor air, while predicted indoor air concentrations for facility buildings were compared to PA Act MSCs for Non-Residential Indoor Air. Using site-specific soil property values, one (1) out of twenty-five(25) soil gas locations at the facility boundary exceeded the criteria for TCE and no locations exceeded the criteria for onsite buildings. Using default values for a model-sensitive soil property (i.e., water-filled soil porosity), three (3) of the twenty-five(25) residential locations and one

(1) out of five (5) onsite locations exceeded the criteria for TCE (see EPA letter to Harley-Davidson, 4/18/05). The maximum predicted indoor air levels of TCE for residential and onsite locations were 1.68 ug/m3 and 0.65ug/m3, respectively, and were calculated using the conservative default values for soil properties. In these conservative cases, the maximum predicted indoor air concentration were within the 10-4 to 10-6 incremental carcinogenic risk range per the most recent EPA Region III RBC for TCE. (Note: The cancer slope factor for TCE and, as a result, the subject RBC for TCE, are currently under review by EPA.) Based on the above, both residential and facility worker exposure to VOCs in indoor air are not reasonably expected to be significant.

Surface and Subsurface Soil

The pathway from contaminated surface soils within the West Parking Lot SWMU to facility workers and trespassers is considered to be complete. However, the West Parking Lot SWMU is not located within an area of active facility operations and the duration and frequency of actual facility worker or trespasser exposure to these soils is expected to be insignificant relative to that assumed in the calculation of the EPA RBCs and PADEP MSCs of interest. To ensure protectiveness, the facility has made a commitment to further evaluate surface soil conditions in the West Parking Lot SWMU and to control the potential for direct contact with the subject soils per the results of this evaluation (see letter from AMO Environmental Decisions dated 8/30/05). For these reasons, any exposures of facility workers or trespassers to surface soils in the West Parking Lot SWMU are not reasonably expected to be significant.

While the exposure pathway from contaminated surface and subsurface soils to construction workers has been determined to be complete, the facility is undertaking the measures to minimize exposure of construction workers to surface/subsurface soils as necessary to prevent unacceptable risks. For example, for construction work in the West Parking Lot in 2004, an Excavation and Soil Handling Guide for Eden Road Relocation and West Roadway Improvements Contractors (SAIC, 7/05) was developed and implemented. Similarly, the facility has made a commitment to develop and implement such plans where facility workers may potentially be exposed to contaminated soils (see letter from AMO Environmental Decisions dated 8/30/05). In this case, any exposure of facility workers to subsurface (or surface) soils is not reasonably expected to be significant, i.e, unacceptable.

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.

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

_X_ 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):

Groundwater

Six (6) offsite residential wells within 1500 feet and potentially downgradient of the impacted monitoring wells MW-64S and MW-64D were sampled by the facility for VOCs in August 2005. Split samples were collected by the Pennsylvania Department of Environmental Protection (PADEP). The analytical results for split samples collected by PADEP (as reported in electronic mail dated 8/19/05) indicate the maximum reported TCE and PCE concentrations in these wells during this sampling event were an estimated 0.44 ug/l and 0.40 ug/l, respectively. The MCL for both TCE and PCE is 5ug/l. Based on available information, it is not clear whether releases from the facility are the source of these reported concentrations. In any case, based on these reported levels and the MCLs for these compounds, the exposure to these substances is within acceptable limits.

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 #PAD 001 643 691, located at1425 Eden Road, York, Pennsylvania 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) Dan Ostrauskas Date 9/15/05
(print) Darius Ostrauskas
(title) EPA Remedial Project Manager

Supervisor (signature) Paul Gotthold Date 9-15-05
(print) Paul Gotthold
(title) Chief, PA Operations Branch
(EPA Region or State) EPA III

(original signed on 9/13/05)

Locations where References may be found:

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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.