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: **Mack Trucks, Inc.**
Facility Address: **7000 Alburtis Road, Macungie, PA 18062**
Facility EPA ID #: **PAD 060493582**

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**		Releases were addressed and remediated.
Air (indoors) [2]		**X**		No record of contamination.
Surface Soil (e.g., <2 ft)		**X**		No record of contamination.
Surface Water		**X**		No record of contamination.
Sediment		**X**		No record of contamination.
Subsurf. Soil (e.g., >2 ft)		**X**		No record of contamination.
Air (outdoors)		**X**		No record of contamination.

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.

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):

Air (indoor and outdoor), Surface Soil, Subsurface Soil, Surface Water, and Sediment:

There are no records of suspected releases that are above protective risk-based "levels" by the facility. (EI Inspection Report, January 2007)

[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.

Groundwater:

Groundwater samples were collected on December 30, 1994 and January 5, 1995. The groundwater sample for one well (MW3) tested positive for TPH DRO and GRO, benzene, toluene, ethyl benzene, and total xylenes. Groundwater samples from four wells tested positive for either TPH DRO or GRO. However, it was determined that the positive detection of TPH DRO was due to a small fraction of weathered gasoline components which fell within the range of the TPH DRO analysis. After excavation and removal of soil from the former gasoline tank area, confirmatory groundwater samples were taken again on May 25, 1995. TPH DRO, GRO, and BTEX values decreased significantly in two wells (MW3 and MW4) due to the excavation of the former gasoline tank field soils. TPH DRO, GRO, and BTEX values increased slightly in three wells (MW1, MW2, and MW5). This increase may have been caused by collecting samples too soon after monitoring well construction and before the groundwater returned to a steady state.

Public water supply wells were sampled on December 30, 1994, May 25, 1995 and October 20, 1995. The results were indicative of non-detectable values in raw water for each of the three sampling events.

In summary, the sampling results indicate that dissolved-phase hydrocarbon components had dispersed both down- and lateral-gradient relative to the former gasoline tank field area. The study results document that the dispersion of hydrocarbon material emanating from the former tank field area is not wide spread, and is vertically and horizontally limited. Subsequently, a hydrocarbon impact to Mack Trucks supply wells has not, and is not expected to occur from existing subsurface conditions.

A fate and transport model was developed to project average groundwater and soil concentrations, and the total mass of hydrocarbons remaining at the property. The model predicts that the study area is well within the boundary limits of the Mack Trucks, Inc. property. Based on the evaluation of the soil and groundwater data, as well as shallow groundwater flow, and aquifer parameters, it was concluded that the results technically demonstrate existing subsurface conditions within the study area, have not at this time, and are not expect in the future, to exceed property boundaries, nor impact property receptors.

An attenuation model was developed on site specific groundwater flow velocities, oxygen uptake rates and other technically defensible data to predict the fate of dissolved hydrocarbons emanating from the source area. The only hydrocarbon concentration which is projected to be above the federal drinking water standards is benzene. The model projects that this benzene concentration decreases to less than the federal drinking water standard (5 part per billion [ppb]) within 442 feet of the source area. However, due to truncation, this standard is met within about 150 feet from the former tank field area. All federal drinking water standards are therefore currently met within approximately 150 feet of the former source area. After eighteen years both benzene and TPH are projected to be non-detectable at a distance of 150 feet from the source area.

A Remedial Action Completion Report, Risk Assessment and Fate and Transport Evaluation Groundwater Monitoring Results and Demonstration of Attainment Documentation was submitted to Mack Trucks, Inc. by AJA on March 6, 2000. The report was provided as documentation of compliance and attainment of the remediation closure standards as specified in the Pennsylvania Department of Environmental Protection's (PADEP) Chapter 245 and ACT 2 for the regulated unleaded gasoline constituents related to the five former underground storage tanks located on the Mack Trucks, Inc. facility. The report was submitted to obtain approval from the PADEP indicating that the reporting requirements specified in Chapter 245 had been completed and that the data and evaluations for the subject property indicate compliance and attainment of the specified remediation standards. (EI Inspection Report, January 2007)

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.							
Surface Water							
Sediment							
Soil (subsurface e.g., >2 ft.							
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).

_____ 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.

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."

____ 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.

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):

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 **Mack Trucks, Inc.** facility, EPA ID # **PAD 060493582**, located at **7000 Alburtis Road, Macungie, PA 18062** 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) _____

(title) _____

Supervisor (signature) _____ Date _____

(print) _____

(title) _____

(EPA Region or State) Paul Gotthold 6-25-09

Locations where References may be found:

USEPA Region III
Waste and Chemical Mgmt. Division
1650 Arch Street
Philadelphia, PA 19103

PADEP
Northeast Regional Office
2 Public Square
Wilkes-Barre, PA 18711

Contact telephone and e-mail numbers
(signature) _____
(print) _____
(title) _____

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.