

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: Marjol Battery Site (Gould Electronics, Inc. - owner)
Facility Address: 600 Delaware Street, Throop Borough, Lackawanna County, PA 18512
Facility EPA ID #: PAD 00 304 1910

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		
Air (indoors) ²		X		
Surface Soil (e.g., <2 ft)	X			Lead, PAH (Aroclor 1254), PCBs.
Surface Water		X		
Sediment	X			Lead in Lackawanna River sediments.
Subsurf. Soil (e.g., >2 ft)	X			Lead, PAH (Aroclor 1254), PCBs.
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): The Site has been stabilized but the final remediation is not yet in place. The cleanup levels referenced below are those established in the EPA Final Decision for the Marjol Battery Site for unrestricted future use of the Site.

Lead in Soil - Surface and subsurface soil are contaminated with lead above 500 mg/kg, the level established as a cleanup standard during the CERCLA off-site residential soil removal program for the Site. This concentration has been established as the lead cleanup level for unrestricted use at the Site. Lead levels exceeding 500 mg/kg are present across much of the site in both surface and subsurface soils and buried waste. Surface soil in the North Woods area adjacent to the former plant area is contaminated with lead above 500 mg/kg. On-Site contaminated materials have been characterized into five categories of source materials. The materials and their average lead concentrations are: (1) battery casing material (BCM)/52,000 mg/kg; (2) mine spoils/16,000 mg/kg; (3) residential topsoil from the CERCLA removal action/1,300 mg/kg; (4) “high” hazardous soil stockpile/7,500 mg/kg; and (5) the low hazardous soil stockpile/1,300 mg/kg.

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PCB and PAH Compounds in Soil - These compounds are present at discrete areas on the Site at levels which exceed EPA's residential cleanup levels. The average concentration detected for the PCB compound, Aroclor 1254, was 7.4 mg/kg. Average PAH compounds ranged from 2.8 mg/kg to 25 mg/kg. The residential exposure cleanup standards for these chemicals are:

<u>Compound</u>	<u>Cleanup Standard</u>
<u>PCB compound:</u> Aroclor 1254	0.054 mg/kg
<u>PAH compounds:</u>	
Benzo(a)anthracene	0.15 mg/kg
Benzo(a)pyrene	0.015 mg/kg
Benzo(b+k)fluoranthene	0.15 mg/kg
Dibenzo(a,h)anthracene	0.015 mg/kg
Indeno(1,2,3-cd)pyrene	0.15 mg/kg

Lead in Sediment - Lackawanna River sediments have elevated lead levels in the area where the site surface water discharges to the River. Lead levels at the site discharge area ranged from 16 mg/kg to 94 mg/kg, with an average concentration of 46 mg/kg, during the most recent sampling event (2nd Quarter of 2002). The lead levels in sediments have been decreasing over time; e.g., the average lead concentration for sediments in the discharge area in 1998 was 514 mg/kg. The EPA screening level for effects on sediment-associated biota is 47 mg/kg.

References:

Report on Extent of Contamination Study, Marjol Battery Plant, May 1, 1989;
RCRA Facility Investigation Report (RFI), March 15, 1993;
Toxicology Benchmark for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revisions, USDOE, November 1997;
Final Decision and Response to Comments for the Marjol Battery Site, December 2000;
Marjol Bi-Monthly Progress Reports.

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.

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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

<u>“Contaminated” Media</u>	Potential <u>Human Receptors</u> (Under Current Conditions)						
	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food ³
Groundwater	---	---	---	---	---	---	---
Air (indoors)	---	---	---	---	---	---	---
Soil (surface, e.g., <2 ft)	No	No	No	No	Yes	No	No
Surface Water	---	---	---	---	---	---	---
Sediment	No	No	No	No	No	No	No
Soil (subsurface e.g., >2 ft)	No	No	No	No	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):

Onsite Soil - No complete pathways are expected. The plant operations at the Site have been shut down since 1981. All buildings were demolished during the CERCLA cleanup activities which took place between 1987 and 1992. The Site is covered with residential soil from the CERCLA off-site residential cleanup. The soil is covered with grass or asphalt.

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The Site is fenced and a 24-hour security guard is on duty at the gate. Everyone entering the contaminated area must wear level D protection and decontaminate outerwear prior to exiting to prevent exposure to on-site contaminants. Currently, any potential for on-site workers to be exposed to site contaminants is primarily limited to surface soil.

Offsite Soil (North Woods) - Areas with lead contamination greater than 2,500 mg/kg are fenced off. Contaminated areas below 2,500 mg/kg are labeled with “No Trespassing” signs. However, trespassers into these areas would be exposed to lead contamination exceeding the unrestricted use cleanup level of 500 mg/kg. These areas will be cleaned up as part of the final remedy for the Site.

Sediment - No complete pathways are expected. Lead levels in sediment, although elevated above background, are well below the human health unrestricted use cleanup level of 500 mg/kg. Lead levels in sediments have decreased over time. Lead levels at the site discharge area averaged 46 mg/kg in the 2nd Quarter of 2002. This shows a reduction of contamination at the most contaminated area to the screening level for effects on sediment-associated biota (47 mg/kg).

References:

Report on Extent of Contamination Study, Marjol Battery Plant, May 1, 1989;
RCRA Facility Investigation Report (RFI), March 15, 1993;
Toxicology Benchmark for Screening Contaminants of Potential Concern for Effects on Sediment-Associated Biota: 1997 Revisions, USDOE, November 1997;
Final Decision and Response to Comments for the Marjol Battery Site, December 2000;
Marjol Bi-Monthly Progress Reports.

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

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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)?

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): The surface soil in a section of the North Wood area adjacent to the site is contaminated with lead above the cleanup level for unrestricted use, 500 mg/kg. The magnitude and frequency of trespasser exposure to contamination in the North Woods area are unknown. Areas with lead contamination greater than 2,500 mg/kg are fenced off. Contaminated areas below 2,500 mg/kg are labeled with “No Trespassing” signs. The areas is inspected monthly. Trespasser exposures are likely to be intermittent, thereby limiting contact with contaminated soil.

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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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 - 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 **Marjol Battery Site** facility, **EPA ID # PAD 00 304 1910**, located at **600 Delaware Street, Throop Borough, Lackawanna County, PA 18512** 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 09/27/02
 (print) Maureen Essenthier
 (title) Remedial Project Manager

Supervisor (signature) _____ Date 09/27/02
 (print) Paul Gotthold
 (title) PA Operations Branch Chief
 (EPA Region or State) EPA, Region 3

ORIGINAL SIGNED 8/10/95

Locations where References may be found:

EPA Region III
1650 Arch Street
Philadelphia, PA 19103-2029

Throop Borough Municipal Building
436 Sanderson Street
Throop, Pa 18512
570-489-8311

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.