

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: L-3 Communications, Electro Fab Division

Facility Address: 960 River Road, Croydon, PA 19021

Facility EPA ID #: PAD054732557

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	_____	No known/documented releases to groundwater from <u>historical/present operations.</u>
Air (indoors) ²	_____	X	_____	No known/documented releases to soil/groundwater from historical/present operations.
Surface Soil (e.g., <2 ft)	_____	X	_____	No known/documented releases to soil from historical/present operations.
Surface Water	_____	X	_____	Nearest down-slope surface water body is 600 feet north. No direct discharges from facility. Facility process and waste storage area indoors (approved no exposure certification). No known releases to <u>groundwater.</u>
Sediment	_____	X	_____	No documented discharges to sediment. No known releases to groundwater.
Subsurf. Soil (e.g., >2 ft)	_____	X	_____	No known/documented releases to soil from historical/present operations.
Air (outdoors)	_____	X	_____	All emissions sources exempt from permitting. No known releases. No documented air violations.

 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.

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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Rationale and Reference(s):

L-3 Communications (L-3) occupies one acre of land located at 960 River Road, Bristol Township, Bucks County, Pennsylvania. The facility is a manufacturer of high quality circuit boards for the aerospace, aircraft, and electronic data communication industries, and is a leading provider to the Department of Defense, Department of Homeland Security, selected U.S. government intelligence agencies, and aerospace prime contractors. The facility was owned and operated by Aydin Corporation from 1967 to 1999 at which time it was acquired by L-3, the current owner/operator.

The facility is a small quantity generator (SQG) of hazardous waste that operates in a single one-story building which houses storage, manufacturing, and clerical operations. Approximately 90 percent of the property consists of impermeable surfaces (i.e., the building and paved areas). The remaining 10 percent of the property (primarily the northern portion of the property) is grass-covered, the majority of which serves as the facility's storm water detention basin. The facility is situated within a small commercial/industrial area surrounded by residential land uses. The nearest residential area is located approximately 400 feet northeast of the facility.

Operations performed at the facility include the assembly, cleaning, etching, and plating (copper, nickel, and gold) of custom circuit boards. Wastewater generated in the facility's laboratory, plating lines, solder strip line, and copper etch area is treated on-site by flocculation and pH adjustment. Treated wastewater is discharged to the Bristol Township wastewater treatment system under permit. Sludges containing metal hydroxides (i.e.; copper and ferrous hydroxide with traces of nickel and lead) are settled out of the wastewater, dewatered, and stored in cubic yard polypropylene bags inside of the facility until transported off-site for recycling. The facility also generates copper etchant (the majority of its waste) which consists of ammonium hydroxide and copper chloride solution. The copper etchant is stored in 55-gallon drums inside of the facility until it is transported off-site for reuse as an ingredient in feed for livestock. The copper etchant has been determined to be non-hazardous waste.

The facility does not operate under an air permit. The facility has several emissions sources; however, these sources have been exempted from permitting by the Pennsylvania Department of Environmental Protection (PADEP). There have been no reported releases and no visual evidence of releases to outdoor air has been documented. There have been no known/reported releases of chemical constituents to soil or groundwater at the facility and no volatile chemicals have historically or currently been used in site operations. Therefore, no further evaluation of the indoor or outdoor air pathway is required related to the facility's historical/present operations.

The facility does not operate under a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharges. There have been no known direct discharges from the facility to nearby surface water bodies. The facility holds a no exposure certification approved by PADEP as all process-related operations and waste storage areas are located inside of the building. As previously discussed, treated wastewater from the wastewater treatment system is discharged to the Bristol Township wastewater treatment system under permit through the township. The facility is required to monitor the effluent monthly for site-related constituents including ammonia, cadmium, chromium, copper, lead, mercury, nickel, silver, arsenic, and zinc. The effluent is also monitored quarterly for cyanide and total petroleum hydrocarbons. There have been no known or reported releases to soil or groundwater related to discharges from the wastewater treatment system.

The nearest surface water body, an unnamed tributary to Neshaminy Creek, is located approximately 0.1 miles (600 feet) north and down-slope of the facility. Direct discharges of storm water runoff to the tributary are not expected. The facility has stated that the on-site storm water detention basin is typically dry and there have been no known releases from historical/present operations at the facility. Based on the information contained in the regulatory files reviewed, the presence of groundwater contamination is not expected at the facility. There is no evidence that spills/releases have occurred to groundwater at the facility that would migrate to the nearby surface water bodies.

Potable water is provided to the facility and surrounding areas by Aqua Pennsylvania. According to the PA, residents within a 3-mile radius of the facility are served by the public water supply or by domestic wells; however, no known domestic wells were identified in the area at the time of the PA (NUS, 1990). According to the Pennsylvania Department of

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Conservation and Natural Resources Groundwater Information System (aka: PaGWIS) database, 22 domestic wells are located within one mile of the facility. One of these is a domestic well owned by PECO, which is located within 0.5 miles south of the facility. Even though this well is characterized as domestic in the PAGWIS database, it is more likely that PECO utilizes this well for observation purposes. Therefore, it is likely that there are no domestic use wells located downgradient of the facility.

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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							
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.

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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):

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):

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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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 L-3 Communications, Electro Fab Division facility, EPA ID # PAD054732557 , located at 960 River Road, Croydon, PA 19021 under current and reasonably expected conditions. This determination will be reevaluated 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) Andrea Barbieri Date 8/31/11
(print) Andrea Barbieri
(title) Environmental Scientist

Supervisor (signature) Paul Gotthold Date 9-8-11
(print) PAUL GOTTHOLD
(title) ASSOCIATE DIRECTOR, LCD
(EPA Region or State) EPA R3

Locations where References may be found:

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

PADEP
South East Regional Office
2 E Main Street
Norristown, PA 19401

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.