

DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION
RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)
Current Human Exposures Under Control

Facility Name: Electro-Platers of York
Facility Address: 209 East Willow Street Wrightsville, PA 17368
Facility EPA ID #: PAD015139470

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			TCE and other constituents exceed PADEP Non-Residential Used Aquifer MSCs
Air (indoors) ²		X		VOCs were released to the subsurface but no occupied buildings exist within 100 feet
Surface Soil (e.g., <2 ft)	X			Cadmium exceeds Non-Residential Direct Contact MSC and Soil-to-Groundwater MSC for Used Aquifers
Surface Water			X	No samples have been collected
Sediment			X	No samples have been collected
Subsurf. Soil (e.g., >2 ft)	X			TCE, antimony, chromium, lead, and thallium exceed Non-Residential Soil-to-Groundwater Used Aquifer MSCs
Air (outdoors)		X		No activities currently release air emissions

_____ 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.

 X 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): Electroplaters of York (EPY) was an electroplating facility that was contracted by various businesses who supplied prefinished metal components for custom electroplating. EPY conducted operations at the facility from 1968 until December 21, 2004. Electroplating operations included: plating with zinc, cadmium, chromium, nickel, brass and silver; pickling steel; and depositing electroless nickel. Wastewater treatment for destruction of cyanide, chromium reduction, chemical precipitation, flocculation, coagulation, and settling with sludge dewatering occurred on site. The facility used trichloroethene (TCE) for vapor degreasing

A Limited Phase II Environmental Site Assessment (ESA) (ECS, March 2006) included a geophysical survey, advancement of soil borings, installation of temporary monitoring wells, and excavation of test pits. The limited investigation was performed in effort to determine whether historical uses of the property had resulted in adverse impacts to the environmental integrity of the property. Limited/select groundwater and soil samples were submitted for laboratory analyses. The ESA compares analytical results to PADEP Non-Residential Non-Use Aquifer MSCs. No supporting documentation, references or approvals for the determination of Non-Use Aquifer for the site or the region was provided in the report. The facility was previously used for industrial purposes and it is currently owned by the Wrightsville borough with intended use for non-residential purposes (i.e., recreational uses). Therefore, for the purposes of this EI, a preliminary evaluation of the groundwater data using Non-Residential Used Aquifer MSCs was conducted.

Groundwater: The ESA presented groundwater sampling and analytical results from two of 12 direct-push borings, eight temporary monitoring wells, and two existing production wells.

In the direct-push boring samples, TCE at EPGP-11 was reported at a concentration of 56.3 µg/L, exceeding the PADEP Non-Residential Used Aquifer MSC of 5 µg/L. Volatile Organic Compounds (VOCs) were detected in all of the groundwater samples submitted from temporary monitoring wells EPB-1 through EPB-8. TCE and its breakdown products (1,2-DCE and vinyl chloride) were detected in the groundwater near a manhole and other locations presumably downgradient (towards the river) of this manhole. This manhole was shown on a soil boring location map approximately 50 feet from the Former TCE Storage Pad (SWMU 9). The highest concentrations of TCE and its breakdown products that were detected in the presumed downgradient area (i.e., between the storage pad and river) included 1,180 µg/L of TCE (at EPB-2), 589 µg/L of cis 1,2-DCE (at EPB-4), and 494 µg/L of vinyl chloride (at EPB-3) which exceeded their respective Non-Residential Used Aquifer MSCs 5 µg/L, 70 µg/L, and 2 µg/L, respectively. The cadmium concentration (8.7 µg/L) at the only location (EPGP-6) where shallow groundwater was analyzed for metals, exceeded its Non-Residential Used Aquifer MSC of 5 µg/L. The full extent of contamination in the shallow groundwater in the vicinity of soil boring location EPGP-6 is unknown.

Two of the four production wells (with intakes from a deeper aquifer) were sampled, with detections of beryllium and zinc in EP-WELL, and TCE in EPWELL 2, at concentrations less than their respective Non-Residential Used Aquifer MSCs. EP-WELL is located at the edge of the western portion of the former building footprint and EPWELL 2 is located near the southeastern corner of the former building footprint. The detection of TCE in one of the production wells (whose intake is reportedly deeper than 200 feet, according to the RFA), indicates that vertical migration of contamination may have occurred.

Surface Soil: When compared to Non-Residential Direct Contact MSCs, cadmium at a concentration of 607 mg/kg at one location in the surface soil at a depth of 1 ft bgs exceeded its MSC (210 mg/kg). The ESA did not consider the Soil-to-Groundwater migration pathway; therefore, for the purposes of this EI, when compared to Soil-to-Groundwater migration MSCs for Non-Residential Used Aquifers, the cadmium concentration at this location also exceeded its MSC (38 mg/kg).

Surface Water/Sediment: The facility operated under NPDES permit PA0007773, initially issued on March 27, 1984. The facility discharged electroplating rinse waters via Outfall 001 to the Susquehanna River. It discharged non-process water to the Wrightsville Sewage System. Effluent limitations for the industrial outfall were for oil and grease, total cadmium, total chromium, total zinc, total nickel, total lead, chlorine-amenable cyanide, and total toxic organics. Until the termination of operations following a fire in 2004, the facility had been issued notices of violation for

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exceedances of limits on parameters specified in the NPDES permit. Discharge of heavy metal contaminants present in sludge and effluent wastewater exceeded permitted limits on several occasions. Corrective measures were taken by the facility. After the fire that terminated the operations, the facility supplied information to show that reactions between chemicals stored at the facility had occurred. The facility believed that no releases of chemicals had migrated beyond the property boundary. However, no sampling or analysis of surface water or sediments was presented to verify this statement.

Subsurface Soil: The ESA did not consider the Soil-to-Groundwater migration pathway; therefore, for the purposes of this EI, a preliminary evaluation of subsurface soil samples from three soil borings and two test pit samples was conducted. One or more constituents were determined to have exceeded their respective Soil-to-Groundwater MSCs for Non-Residential Used Aquifers. TCE concentrations at EPGP-2 (3-4 foot bgs) and EPGP-6 (6 foot bgs) were 1.16 mg/kg and 1.01 mg/kg, exceeding 2 times its Non-Residential Soil-to-Groundwater MSC of 0.5 mg/kg. EPGP-2 and EPGP-6 were located near the SWMU 2, Neutral Waste Treatment Tanks. The soil sample from EPGP-2 also contained chromium at a concentration of 333 mg/kg, exceeding its Soil-to-Groundwater MSC (assuming hexavalent chromium) of 190 mg/kg. The soil sample from the third soil boring EPGP-4 (1 foot bgs) contained antimony (57 mg/kg), cadmium (607 mg/kg), and chromium (814 mg/kg), exceeding their respective Soil-to-Groundwater MSCs of 27 mg/kg, 38 mg/kg, and 190 mg/kg (for hexavalent chromium). Test pit TP-1 soil sample (4 foot bgs) contained cadmium (141 mg/kg), chromium (265 mg/kg), lead (526 mg/kg), and thallium (20.4 mg/kg), exceeding their respective Soil-to-Groundwater MSCs of 38 mg/kg, 190 mg/kg, 450 mg/kg, and 18.14 mg/kg. Test pit TP-2 soil sample (4 to 6 foot bgs) also contained chromium (293 mg/kg) exceeding its Soil-to-Groundwater MSC of 190 mg/kg. Although a potential for migration from soil to groundwater was indicated in the ESA, the groundwater at these locations was not investigated.

The ESA report concluded that the on-site soil contamination did not appear to represent a human health exposure risk in its present condition. However, future disturbance of soil or on-site structures (presumably the building floor slab) may pose an ecological or human health exposure risk during site improvement activities and/or to site occupants subsequent to property redevelopment. Furthermore, the ESA report recommended removal and/or capping of the former facility building with "clean fill" in order to prevent direct contact/human exposure with the soil contamination. The ESA report recognized the need to conduct the removal activities in accordance with local, state, and federal regulations and the need to collect confirmatory soil samples after completion of the removal activities.

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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

Potential **Human Receptors** (Under Current Conditions)

Contaminated Media	<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 mediareceptor 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):

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):


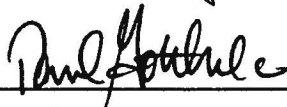
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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation 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 Electro-Platers of York facility, EPA ID # PAD015139470, located at 209 East Willow St Wrightsville, PA 17368 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."

 X IN - More information is needed to make a determination.

Completed by (signature)		Date	<u>12/15/10</u>
(print)	<u>Kevin Bilach</u>		
(title)	<u>RCRA Project Manager</u>		
Supervisor (signature)		Date	<u>12/17/10</u>
(print)	<u>PAUL GOTTHOLD</u>		
(title)	<u>ASSOCIATE DIRECTOR, LCD</u>		
(EPA Region or State)			

Locations where References may be found:

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

PADEP
South Central Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110

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.