

**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: Elco Corporation  
Facility Address: 10426 Fairgrounds Road, Huntingdon, PA 16652  
Facility EPA ID #: PAD 003009461

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”<sup>1</sup> 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			<u>Volatile organics</u>
Air (indoors) <sup>2</sup>		X		<u>Volatile organics</u>
Surface Soil (e.g., <2 ft)	X			<u>Volatile organics, cadmium</u>
Surface Water	X			<u>Volatile organics</u>
Sediment		X		<u>No record of contamination</u>
Subsurf. Soil (e.g., >2 ft)	X			<u>Volatile organics and cadmium</u>
Air (outdoors)		X		<u>No record of contamination</u>

\_\_\_\_\_ 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):**

**General Information:**

Constructed in 1961, the former Elco Corporation Facility used stamping and surface finishing processes, such as electroplating, anodizing, zincating and chromating, to manufacture metal electrical components until it closed on June 30, 1996. Electroplating processes at the Facility included copper, nickel, gold, tin-lead, zinc and silver. The Facility was purchased by AVX, a manufacturer of and supplier of electronic components in 1996. In 2000, AVX sold the Facility to D. Real Estate, Inc. The Facility is currently occupied by Seven D. Industries, LP, who manufactures vinyl window and patio door products.

<sup>1</sup> “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).

<sup>2</sup> 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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**Groundwater:**

The water bearing formation beneath the former Elco Corporation property (Facility) is comprised of weathered bedrock underlain by competent shale bedrock. Groundwater occurs at shallow depths and ranges from about 1.5 ft. below ground surface (bgs) behind the Facility building to 9 ft. bgs at the southeastern property boundary. Groundwater flow is to the southeast toward Crooked Creek, which represents the groundwater discharge boundary for the bedrock groundwater system. The hydraulic conductivity (ability to transmit water) of the bedrock formation is very low and indicative of a low permeability groundwater system.

In 1996, elevated levels of volatile organic compounds (VOCs) were detected in the groundwater beneath the facility building. The major constituents of concern are trichloroethylene (TCE) and its breakdown products cis-1,2-dichloroethylene (1,2-DCE) and vinyl chloride, in addition to 1,1,1-trichloroethane (1,1,1-TCA), 1,1-dichloroethane (1,1-DCA), toluene, and methylene chloride. The highest VOC concentrations (above 100,000 µg/l) were detected in the northeast area of the western part of the former plating department (MW-8) and in the former orange team room (WM-10). Elevated VOC concentrations were also detected in the former drum storage area (5,000 µg/l in MW-11) and in the adjacent building alleyway (12,000 µg/l in MW-12). These areas are all areas where solvents were handled during previous operations and are source areas where VOC constituents are believed to have entered the groundwater. Additionally, investigative findings indicate that the TCE contamination predates the 1966 building addition and appears to date back to about 42 years, to releases during the early years of operation from 1962 through 1966. The area of groundwater contaminated with VOCs was estimated to be approximately 4.2 acres.

Environmental remediation was implemented at the Facility in 1997 by AVX Corporation (AVX) on a voluntary basis in accordance with Pennsylvania's Land Recycling and Environmental Remediation Standards Act (Act 2). Remediation of the site included the removal of soil and concrete contaminated with VOCs and the installation of a vacuum enhanced recovery (VER) system to remove VOCs, primarily TCE, from contaminated soil and groundwater. The VER system was in operation from April 1998 to December 2000 and removed 780 pounds (62-gallons) of TCE. AVX continues to monitor the groundwater quality at the site under a Post Remediation Care Plan, and as of November 2008, on-site water quality conditions remained stable and in conformance with Pennsylvania's State Health Standards (SHS) and Act 2 Site-Specific Standards

**Surface and Subsurface Soil:**

*Beneath the Facility Building:* The Facility building is underlain by a thin veneer of clay soil overlying weathered shale bedrock. The Facility building is raised above grade, and there is approximately 4 feet of silty clay soil fill beneath the concrete floor. Test boring programs were conducted beneath the former plating department and other Facility areas. In May 1994, an area of elevated TCE concentrations (5 to 32 mg/kg) in the soil was found at the northeast area of the western part of the former plating department, which exceeded the non-residential soil-to-groundwater medium-specific concentration (NRMSC) of 0.5 mg/kg.

The primary impacted zone was found to be near the bottom of and below the fill, and indicated that the TCE contamination pre-dated the 1966 building addition, which included construction of the western part of the former plating department. Prior to 1966, the interior dividing wall of the plating department made up the outer western wall of the Facility building, and a loading dock was present in this area. Thus, the TCE contamination in the soil beneath the former plating department appears to date back to the early years of operation between 1962 and 1966.

In addition to VOCs, the surface and subsurface soils beneath the Facility building were evaluated for eight metals that had been used in the Facility's operations. Elevated cadmium concentrations were detected in an approximate 50 by 30 ft. area in the northeast area of the western part of the plating department, in the vicinity of an old wastewater collection tank and an old retention (acid) tank. The cadmium concentrations in this area were above the soil-to-groundwater NRMSC of 38 mg/kg. And, in one very limited area, adjacent to the old wastewater collection tank, cadmium concentrations were detected at concentrations up to 8,615 mg/kg, which is above the 1,400 mg/kg surface soil (0-2 ft) direct contact criterion.

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*Former Drum Storage Area and Adjacent Alleyway:* These areas are characterized by a thin layer of clay soil (1.5 feet) over the underlying weathered shale bedrock, and a shallow water table. Test boring programs indicated that soil in these areas were impacted by VOCs. Toluene (up to 540 mg/kg) and 1,1,1-TCA (up to 120 mg/kg) were the contaminants found at the highest concentrations, with lower concentrations of TCE (up to 5.1 mg/kg), tetrachloroethylene (PCE) (up to 2.6 mg/kg), and xylenes (up to 0.6 mg/kg). One or more results for these compounds were above the soil-to-groundwater (but not above the direct contact) NRMSCs.

**Surface Water:**

There is an unnamed stream that is piped through the Facility property which has no flow during dry periods, particularly during the drier months of late summer and early fall. Consequently, this stream is defined as intermittent. Therefore, Crooked Creek is the first point-of-use of surface water to which Pennsylvania's ambient surface-water quality criteria (25 PA Code Chapter 16) are applicable. The designated protected use for Crooked Creek is for warm water fishes and, there are no special exceptions to the specific statewide criteria. However, although not directly applicable to the unnamed stream, the surface-water quality criteria were used as a basis for comparison.

During the remedial investigation, consistent TCE concentrations (21 to 28 µg/l) above the human health criterion of 3 µg/l were detected in January, March, and April 1997 at the unnamed stream sampling point (Stream D, below the culvert beneath highway) just downstream of the Facility. TCE was also detected at a concentration of 14 µg/l in March 1997 and 2J µg/l in April 1997 at the unnamed stream sampling point (Stream C) just above its confluence with Crooked Creek.

**Sediment:**

*On-Site:* An Ecological Screening of the Facility was performed by Environmental Quality Management, Inc. of Greenville, South Carolina and followed the nine-step procedure outlined in the Pennsylvania Department of Environmental Protection, Land Recycling Program Technical Guidance Manual. No critical aquatic or terrestrial habitats were observed on the site. In addition, no threatened, endangered, or rare species are known or suspected to be present within a 2,500 foot radius of the Facility border or within the ecological screening area. Overall, there was negligible evidence to indicate that sediments at the Facility have the potential to pose substantial ecological impacts that would require additional evaluation.

*Off-Site:* The potential impact to the surface water in Crooked Creek from the groundwater flux into the creek for the VOC compounds of concern was calculated using a mass balance mixing analysis, which showed that the groundwater flux of 200 gallons per day (gpd) is very small compared to the Crooked Creek low-flow of 750,968 gpd. The Crooked Creek concentration for TCE is 0.00985 µg/l and even lower for the other VOC constituents. Comparison of the calculated Crooked Creek concentrations to PA Code 25 Chapter 16 (Appendix A Table 1) ambient surface-water quality criteria indicates that the resultant Crooked Creek concentrations for VOCs of concern are much lower (by several orders of magnitude) than the instream criteria which are protective of both human health, and fish and aquatic life. As such, it is concluded that there is no significant risk posed to human health and the environment by the sediment in Crooked Creek.

**Air (Indoor):**

*On-Site:* As previously noted, an area of elevated TCE soil concentration was found beneath the plating department of the Facility building. In this area, TCE concentrations from 5 to 32 mg/kg were detected in the soil in May 1994 during the Remedial Investigation (RI) programs (Uhl, 2000). These concentrations exceed the PADEP Soil Criteria/Screen (mg/kg) for Protection of Indoor Air: Nonresidential (Commercial/Industrial) (Table 5) value of 2.2 mg/kg. The values in Table 5 were derived for an incremental lifetime cancer risk of  $1 \times 10^{-5}$  and a hazard index of 1. As a result, EPA requested an evaluation of indoor air which was performed in December 2013 (ARCADIS, 2014). Concentrations in the samples were below both EPA RSL and PADEP NRMSC screening levels.

*Off-Site:* The potential off-site indoor air impacts from TCE were evaluated by EPA using the current Vapor Intrusion Screening Level (VISL) Calculator. The VISL was calculated using groundwater concentrations from the

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newly installed MW-3D (98 ft. bgs). The most recent groundwater concentration from MW-3D was 73 ug/L. The VISL results were within EPA's acceptable incremental lifetime cancer risk range of  $1 \times 10^{-4}$  and  $1 \times 10^{-6}$  ( $4.6 \times 10^{-6}$ ) and a minimally exceeded a hazard index of 1 (1.1). EPA's vapor intrusion technical guidance is primarily concerned with structures "near" the contaminant source. Considering the depth of well MW-3D (98 feet), these concentrations and results are beyond the recommended distance of 100 feet for initial evaluation (EPA, 2015 section 6.2.1) of any off-site structure. Therefore, there is no reason to suspect off-site media is reasonably suspected to be contaminated above appropriately protective risk-based levels.

**Air (Outdoor):**

There is no record of contamination and, therefore, no reason this media is reasonably suspected to be contaminated above appropriately protective risk-based levels.

**References:**

Remedial Investigation Report, Former Elco U.S.A. Facility, Huntingdon, Pennsylvania, prepared by Vincent Uhl Associates, Inc., September 2000; Final Report, Former Elco U.S.A. Facility, Huntingdon, Pennsylvania, prepared by Vincent Uhl Associates, Inc., March 2003; Results of Post-Remediation Care Groundwater Monitoring Events November 2008 and April 2009, Former Elco U.S.A. Facility, Huntingdon, Pennsylvania, prepared by Uhl, Baron, Rana, & Associates, Inc., June 2009. Phase II Groundwater and Soil Vapor Investigation Report, Former ELCO Corporation, prepared by ARCADIS, May 2014. OSWER Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air (EPA, 2015). VISL Calculator results (EPA, 2018).

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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>Food<sup>3</sup></u>
Groundwater Air (indoors)	No	No	No	No	No	No	No
Soil (surface, e.g., <2 ft.) Surface Water Sediment	No	No	No	No	No	No	No
Soil (subsurface e.g., >2 ft.) Air (outdoors)	No	No	No	No	No	No	No

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).

  X 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):**

Institutional controls have been imposed on the former Elco Corporation Facility property in order to prevent a complete exposure pathway from contaminated surface soil, subsurface soil, and groundwater at the site. On December 8, 2000, a Deed Acknowledgement was executed for the premises and stated that the premises had been remediated to a SHS or a Site-Specific standard in accordance with Act 2. The Deed Acknowledgement, which runs with the land and is binding upon all successors and assigns of the Owner, including successors in title to the premises, limits use of the site to commercial or industrial activity, prohibits the use of surface water and groundwater, whether for potable or non-potable uses, restricts disturbance of subsurface strata and soils in designated areas, except as may be necessary to install adequate foundation bearing support features, and requires that PADEP be notified at least 30 days prior to development or redevelopment which could disturb subsurface strata and soils in designated areas (Uhl 2003).

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

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In addition to the Deed Acknowledgement, on July 9, 2001, Smithfield Township issued Municipal Ordinance No. 2001-4 prohibiting the drilling or use of water from a water supply well. The area governed by the Ordinance includes the former Elco facility property and six down gradient properties (identified as Tax Parcels 45, 46, 47.1, 47, 48 and 10) that lie across State Highway 3035 (Fairgrounds Road) between the Facility and Crooked. All of these properties are served by a public water supply.

**Groundwater:**

VOCs are present in the groundwater at the residual source areas (former plating department, orange room and maintenance room) and downgradient of the source areas (TCE was detected in MW-3, the point-of-compliance well at the property boundary). Beginning in 2003 and continuing to the present, Uhl, Baron, Rana, & Associates, Inc. have submitted Semi-Annual and Annual Post-Remediation Care Groundwater Monitoring Reports to PADEP. On-site water quality conditions have remained stable and in conformance with the Statewide Health and Site-Specific standards. The direct contact exposure pathway for VOC contamination in the groundwater is incomplete due to the institutional controls placed on the former Elco property and down gradient properties.

**Surface Soil and Subsurface Soil:**

*Beneath the Facility Building:* Consistent with the Site-Specific standard, limited residual cadmium remains in soil underneath the building in the area of the former plating department. The direct contact exposure pathway for cadmium contamination in the soil is incomplete. The impacted soil is located beneath the concrete floor of the building, and the remedial investigation results demonstrate that groundwater beneath the Facility building has not been impacted by cadmium.

*Former Drum Storage Area and Adjacent Alleyway:* In October and November 1997, soil/weathered bedrock was excavated, in addition to the concrete pad, in the former drum storage area and adjacent building alleyway. The excavation was advanced into the water table and backfilled with clean fill. Post remediation sample results showed that soils with VOC concentrations above the Statewide Health Standard had been removed.

**Surface Water:**

The unnamed stream that is piped through the Facility property is defined as intermittent and its relative low flow input to Crooked Creek is expected to be less than 1 percent of the Crooked Creek flow on the basis of drainage areas for both stream systems (0.164 mi<sup>2</sup> v. 26.4 mi<sup>2</sup>). This intermittent low flow input characterized by low TCE concentration near the confluence does not present a concern with respect to instream criteria for Crooked Creek. In addition, a risk assessment concluded that there was no significant risk posed to human health and the environment by the groundwater discharge to Crooked Creek.

**Trespassers:**

Security of the facility is assumed by current ownership, Seven D Industries. The facility and outside areas are enclosed by locked fence and under constant supervision of facility personnel. Visitors are required to sign in and are escorted by facility personnel at all times.

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4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**<sup>4</sup> (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., asite-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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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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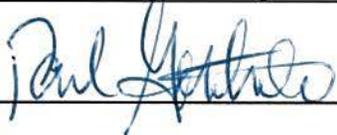
6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

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 Elco Corporation facility, EPA ID # PAD 003009461, located at 10426 Fairgrounds Road, Huntingdon, PA 16652 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 5/21/18  
(print) Kevin Bilash  
(title) Remedial Project Manager

Supervisor (signature)  Date 5-23-18  
(print) Paul Gotthold  
(title) Associate Director

(EPA Region or State) EPA Region III  
Office of Pennsylvania Operations

Locations where References may be found:

USEPA Region III  
Land and Chemicals Division  
1650 Arch Street  
Philadelphia, PA 19103

PADEP  
Southcentral Regional Office  
909 Elmerton Avenue  
Harrisburg, PA 17110

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.**