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: **AERC.com, Inc. (dba AERC Recycling Solutions)**
Facility Address: **2591 Mitchell Avenue, Allentown, PA 18103**
Facility EPA ID #: **PAD987367216**

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).

Current Human Exposures Under Control
Environmental Indicator (EI) RCRIS code (CA725)

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		No reported releases to groundwater.
Air (indoors)[2]		X		Air monitoring conducted inside building daily.
Surface Soil (e.g., <2 ft)		X		Reported release of treated wastewater to drainage swale; mercury concentrations below discharge limit in the facility's Industrial Waste permit.
Surface Water		X		Reported release of treated wastewater to drainage swale; mercury concentrations below discharge limit in the facility's Industrial Waste permit.
Sediment		X		Reported release of treated wastewater to drainage swale; mercury concentrations below discharge limit in the facility's Industrial Waste permit.
Subsurf. Soil (e.g., >2 ft)		X		Reported release of treated wastewater to drainage swale; mercury concentrations below discharge limit in the facility's Industrial Waste permit.
Air (outdoors)		X		Determination of minor significance issued. No reported releases.

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.

Rationale and Reference(s):

AERC.com, Inc. (dba AERC Recycling Solutions) (AERC or facility) has been in business since 1990 serving as a full-service environmental recycling company specializing in the reclamation of hazardous materials. The facility processes metallic mercury, fluorescent lamps, spent batteries, thermostats, and other mercury-containing wastes. The facility also brokers non-leaking polychlorinated biphenyl (PCB) and non-PCB containing lighting ballasts and all types of batteries. In 2003, facility expanded its service offerings into the electronic equipment recycling area.

The facility operates as a hazardous waste treatment, storage, and disposal (TSD) facility (PAD987367216) and is a large quantity handler of universal wastes and an authorized household waste recycler. The facility maintains a National Pollutant Discharge Elimination System (NPDES) permit (PAR232210) for stormwater runoff and a permit to discharge industrial wastewater to the City of Allentown sewer system (permit CUA000).

The facility is situated on a 3.2 acre parcel located at 2591 Mitchell Avenue, Allentown, Lehigh County, Pennsylvania. The property is located in the South Allentown Industrial Area. The property is zoned general industrial. Industrial/manufacturing properties surround the facility on the north, east, and south sides. Railroad tracks are located immediately to the west. The Allentown Queen City Municipal Airport is approximately 1,000 feet northwest of the facility. Residential areas are located more than 0.25 miles to the north and east.

A six-foot high chain link fence surrounds the facility. Access to the facility is via one gated entrance on Mitchell Avenue. The entrances are locked during non-operating hours. One 32,000 square foot slab-on-grade warehouse building exists onsite. Asphalt-paved employee parking and loading/unloading areas are located on the south side of the building. The west, east, and north sides of the building are grass-covered. Approximately 45 percent of the property is covered with permanent impermeable surfaces. The remaining 55 percent is grass covered or heavily wooded.

With the exception of the shipping and receiving area, the entire building is constructed as a secondary containment unit. This includes epoxy-coated floors and walls and sealed thresholds or speed bumps at man doors and forklift passageways. Separate secondary containment units consisting of sealed floors and one-foot high concrete curbing are present at the wastewater treatment system/hydrometallurgical process area and the mercury retorts. There are no floor drains present at the facility. Hazardous wastes are stored inside of the building. The facility also stores residual wastes (cardboard, clean glass, clean powder, and universal waste batteries) outdoors either in sealed drums, in-transit trailers, or covered roll-off containers.

Stormwater run-off from the industrial park is directed to stormwater catch basins located on Mitchell Avenue. The run-off is directed to the City's outfall located along the facility's southern property boundary and discharges into the wooded area. The City maintains a sampling station at the point of discharge to monitor the stormwater discharge. There are no stormwater catch basins on the property. Surface run-off on the active portion of the property flows to the northwest.

Waste

The facility submitted a Part A Hazardous Waste Permit Application to the Pennsylvania department of Environmental Protection (PADEP) on February 16, 1993 to fulfill the requirements for permit-by-rule (PBR) for facilities engaged in applicable recycling activities. The Part A Hazardous Waste Permit Application listed six waste types including D001 (ignitability), D002 (corrosivity), D003 (reactivity), D008 (lead), D009 (mercury) and D011 (silver).

Permitted processes conducted at the facility include physical de-manufacturing of mercury-containing lighting devices; hydrometallurgical processing of mercury and precious metal salts and solutions; pyrometallurgical processing of precious metals; and mercury recovery via vacuum heating and distillation/condensation (retort systems).

Lamp recycling is conducted in one self-contained unit in the lamp processing area located in the southwest corner of the building. The lamps are segregated into their separate components. The components are either sent offsite for further

recycling or further processed (phosphor powder) in the retorts. The hydrometallurgical batch process area is located within an area of secondary containment with the facility's wastewater treatment system (used to process wastewater from the hydrometallurgical process and the retorts) in the west end of the building. Mercury and other precious metals are removed from metal-bearing wastes in solution or solids using reagents and catalysts. The metals separated in this process are further recovered or sent offsite to approved metal recyclers. The pyrometallurgical process is conducted in the quality control/treatability laboratory located in the southeast corner of the building. The process involves high-temperature furnaces to cast small quantities of precious metals recovered from wastes processed in the hydrometallurgical system. Metallic mercury or mercury-containing materials destined for recycling are processed in the one of the two retorts located in the northern portion of the buildings. The wastes are heated under vacuum to produce mercury vapor. The vapor is then cooled and the condensed metal sold as commodity grade mercury or is triple distilled in the mercury distillation room if further purification is required.

Waste ash solids generated from the retort process are sent to a commercial waste treatment facility. Solutions generated from the hydrometallurgical process are treated onsite in the wastewater treatment system or sent offsite to a commercial hazardous waste treatment facility. Non-reusable solutions with USEPA Hazardous Waste Code D009 (mercury toxicity) characteristics are accumulated in closed containers and stored inside of the facility until transported offsite to a permitted treatment facility. Recyclable non-hazardous materials (glass, aluminum, carbon, and cardboard) are sent offsite to be recycled.

The current permit, issued August 2006, allows the facility to accept wastes from the following generic categories specifically associated with the lamp recycling, mercury recovery, hydrometallurgical, and pyrometallurgical processes:

GENERIC WASTE CATEGORY	WASTE TYPE
Mercury Containing Lighting Devices	Arc lamps, fluorescent lamps, mercury lamps
Alkaline Solutions Containing Various Metals	Nessler's reagent, mercury compound sodium hydroxide mixtures
Acid Solutions Containing Various Metals	Hydrochloric, nitric and sulfuric acids containing mercury Chemical Oxygen Demand solution (COD)
Solid Metals and Compounds	Mercuric and mercurous acetate, mercuric and mercurous bromides, mercurous chlorate, mercuric chloride ammoniated, mercuric cyanide, mercuric dichromate, mercuric iodate, mercuric and mercurous oxide, mercuric and mercurous sulfate, mercurous sulfide, mercuric thiocyanate, mercuric chloride, mercurous chloride
Mercury Containing or Contaminated Devices and Apparatus	Ignitron tubes, relays, switches, thermometers, manometers
Solids Amenable to Thermal Retort for Mercury	Carbon contaminated mercury, phosphor powder, dental amalgam, mercury amalgams, spill clean-up containing mercury
Plant Scraps and Organic Debris	Vermiculite, contaminated personal protective equipment (PPE)
Neutral Solutions Containing Metals	Liquids/water solutions containing mercury compounds, oil containing mercury, Zenker's solution
Metallic Mercury	Bottles of liquid mercury
Lighting Devices Containing Various Metals	Quartz lamps, low pressure sodium lamps
Residual Waste Containing Mercury	Non-hazardous wastes as set forth in the above categories.

Under the permit, the facility is approved to store containers of the following types of hazardous wastes:

HAZARDOUS WASTE CODES	DESCRIPTION
APPROVED PRIMARY HAZARDOUS WASTE CODES	
D009	Waste that exceed the characteristic of toxicity for mercury
D011	Waste that exceed the characteristic of toxicity for silver
K071	Brine purification mud from the mercury cell process in chlorine production, where separately pre-purified brine is not used
K106	Wastewater treatment sludge from mercury cell process in chlorine production
P030	Mercury cyanides only. All other cyanides can be accepted as a secondary waste codes
P092	Phenyl mercuric acetate
U151	Hazardous commercial chemical product mercury
APPROVED SECONDARY HAZARDOUS WASTE CODES	
D001, D002, D003, D004, D005, D006, D007, D008, D010, D018, D019, D021, D022, D023, D024, D025, D026, D027, D028, D029, D033, D035, D036, D038, D039, D040 and D043	Characteristically Hazardous Waste
F001, F002, F003, F004, F005, F006, F024 and F025	Hazardous Waste from non-specific sources
P003, P005, P010, P010, P011, P012, P016, P022, P024, P027, P029, P073, P074, P077, P082, P087, P099, P101, P102, P103, P104, P110, P113, P114, P115, P119, P120 and P121	Acutely toxic discarded commercial chemical products, off specification species, container residue, and spill residues thereof.
U001, U002, U003, U004, U006, U008, U009, U012, U017, U019, U020, U023, U025, U027, U028, U031,U032, U034, U037, U041, U042, U043, U044, U047, U048, U051, U052, U053, U055, U056, U067, U068, U069, U070, U071, U072, U074, U075, U076, U077, U078, U079, U080, U083, U084, U085, U088, U102, U103, U107, U108, U110, U112, U113, U117, U118, U 121, U122 , U123, U124, U125, U126, U128, U130, U136, U138, U140, U141, U144, U145, U146, U152, U154, U159, U161, U162, U169, U171, U172, U173, U174, U182, U186, U188, U191, U194, U196, U203, U204, U205, U208, U209, U210, U211, U213, U214, U215, U216, U217, U220, U223, U226, U227, U228, U238, U239, U243 and U359	Commercial chemical products, manufacturing chemical intermediates or off-specification commercial products.

The amount of waste permitted in the different areas of the facility is as follows:

STORAGE AREA	PRIMARY WASTE CODE	MAX CAPACITY
A	D009, D011, U151	66 drum equivalent
B	D009, U151	532 drum equivalent
C	D009, D011	604 drum equivalent, 110 pallets (lamps), (1044 drum equivalent)
D	D009, D011, U151, K071, K106	8 drum equivalent
E	D009 Cathode Ray tubes (potential D008)	60 drum equivalent, 45 pallets (lamps), (240 drum equivalent max)
F	None	190 pallets , (760 drum equivalent max)
High-intensity Discharge (HID) Processing Storage Area	D009, U151	33 pallets (lamps), (132 drum equivalent max)
Battery Storage Area	Assorted waste types	9 drum equivalent
Plant Scrap Accumulation Area	Assorted waste types	16 drum equivalent
Retort Water Tote storage Area	Assorted waste types	11 drum equivalent
Quality Assurance/Quality Control (QA/QC) Staging Area	D009, D011, U151, K071, K106	1 drum equivalent
Residual Waste "Clean Carbon" Roll-off Area	None	48 drum equivalent
Residual Waste "Clean Powder" aka Phosphor Roll-off Area	None	40 cubic yards (CYD) (80 drum equivalent max)
Residual Waste "Clean Glass" Roll-off Area	None	90 CYD (180 drum equivalent max)
Residual Waste Roll-off Area	None	40 CYD (80 drum equivalent max)
Residual Waste "Aluminum End Caps" Roll-off Area	None	6 CYD (80 drum equivalent max)
Two Outbound Electronic Scrap Trailers	None	80 Pallets
Outside Battery Storage Area	Part III Section A	528 drum equivalent
Two Outbound Battery Storage Trailers	Part III Section A	176 drum equivalent
Discrepancy Area	Part III Section A	16 drum equivalent
WB	Part V Section G	792 drum equivalent
G	D009 Cathode Ray Tubes (potential D008)	60 drum equivalent and 75 pallets (350 drum equivalent max)
Process# HIDAR1	D009, U151	1 drum equivalent
Process# RSWS1	Not applicable	To be determined
Process# SM1	Not applicable	To be determined
Process# HM1	Not applicable	To be determined
Process# G1	Not applicable	To be determined
Process# E1	Not applicable	To be determined

Universal wastes (e.g., segregated batteries) are stored outdoors in sealed containers on the covered, concrete loading dock. Waste lead/acid batteries are stored inside of an outbound trailer that was retrofitted with secondary containment. The trailer is located adjacent to the universal waste storage area. Residual wastes including clean glass and powder from lamp processing, metal scrap, and plant trash are stored in roll-off containers staged outside the south side of the building until transported offsite for recycling or disposition.

SWMUs
SWMUs and related processes identified in the facility's TSD permit include:

SWMU 1: Thermal Retorts for Mercury Recovery
SWMU 2: Hydrometallurgical Process Batch Reduction Reactor System
SWMU 3: Hydrometallurgical Process Packed Column Reactors (aka: distillation system)
SWMU 4: Hydrometallurgical Process Leaching/Washing Reactors System (aka: wastewater treatment system for hydrometallurgical wastewater and water from the retorts)
SWMU 5: Pyrometallurgical Unit
SWMU 6: Lamp Recycling (Permit Process L1)
SWMU 7: Ballast Transfer Operations (Permit Process B9)
SWMU 8: Battery Sorting Operation (Permit Process B10)
SWMU 9: Disintegrator Knife Mill (Permit Process DK1)
SWMU 10: HID Ampoule Roller (Permit Process HIDAR 1)
SWMU 11: Waste Staging and Storage Areas

During the October 2011 site visit, the SWMUs identified in the permit were in good condition. No evidence of releases was observed.

Storage Tanks
The facility registered two ASTs documented in an acceptance letter from PADEP on December 5, 1997.

ASTs				
Tank No.	**Date Installed**	**Size (gallons)**	**Contents**	**Status**
001A	10/20/97	1,500 Poly Tank	Sodium Hydroxide	Active
002A	10/20/97	305 Poly Tank	Hydrochloric Acid	Active

The tanks are double-walled with interstitial monitoring for release detection. Overfill prevention and spill prevention is present.

Releases
Two documented releases occurred outside of the building. On February 4, 1998, the facility notified PADEP that approximately 750 gallons of treated wastewater was discharged to the macadam parking lot. The incident occurred when a hose from the indoor wastewater treatment system fell from within a 5,500-gallon outdoor tanker truck (removed from service in 1999). The wastewater flowed across the parking lot and discharged several hundred gallons into a swale located on the southern property boundary. Four samples of the treated wastewater were collected from various locations in the parking lot and swale. Results for samples of the discharge analyzed for mercury ranged from non-detect to 0.11 milligram per liter (mg/L) below the discharge limit in the facility's Industrial Waste permit (CUA000). The wastewater was pumped into totes then into the City's sewer system. None was discharged to the connecting water course. As a result of the release, the facility implemented several measures to prevent the re-occurrence of the event, which included the use of totes to store treated wastewater prior to discharge to the sewer system. The totes are stored within the building.

On November 23, 2010, the facility contacted PADEP to report a release of liquid mercury at the facility. A manometer containing liquid mercury was transported to the facility on a stake bodied truck. While unloading the truck, facility personnel observed beads of mercury on the truck bed and on the parking lot beneath the truck from the manometer that had broken in transit. The area was secured and the facility, with assistance from the transport company, immediately initiated cleanup activities which involved vacuuming the mercury. Therelease was confined to the parking lot.

NPDES
PADEP issued NPDES permit PAR232210 for discharges of storm water from industrial activities to an unnamed intermittent drainage stream on November 7, 1992. On August 18, 2006, the permit was renewed through February 26, 2012. The facility is subject to Appendix J monitoring requirements and best management practices.

Industrial Waste Permit - City of Allentown
The facility is permitted to discharge industrial wastewater from the wastewater treatment system (currently only processes wastewater from the retorts) to the City sewer system per Industrial Waste permit CUA000, which was issued on August 1, 2007 and expires July 31, 2012. The treated wastewater is held in the 850 gallon aboveground storage tank (AST) located in the secondary containment area and in totes stored in waste storage area E located in the lamp processing area until approved by the City for witnessed discharge. The facility collects and analyzes effluent samples and sends the results to the City. The City also collects its own samples and conducts its own analysis prior to allowing the discharge to occur.

Groundwater: There have been no groundwater investigations conducted at the facility; therefore, depth to groundwater and the direction of groundwater flow is unknown. Based on the surrounding topography and location of large surface water bodies, it is expected that shallow groundwater flow would be to the northwest toward Little Lehigh Creek.

Residential, commercial, industrial and municipal users in the City are provided with a dependable and adequate supply of drinking water and water pressure by the City's Bureau of Water Resources (BWR). The BWR operates a water filtration plant which treats up to 30 million gallon of water per day. The plant draws water from two surface water sources, the Little Lehigh Creek and the Lehigh River, and two groundwater sources, Schantz and Crystal Springs. The surface water intakes and the springs are located greater than one miledownstream of the facility.

Information obtained from the Pennsylvania Department of Conservation and Natural Resources (DCNR) Groundwater Information System (PaGWIS) accessed on March 15, 2011 identified 19 groundwater wells located within a 0.5 mile radius surrounding the facility. The wells included:

- Four wells located west of the facility. The wells are owned by United Service Station, were installed in 1989, are 25 feet deep, and are listed for mine use.
- Eight wells located directly south of the facility. The wells are owned by Crystal Brands, were installed in 1992, range in depth from 35 to 100 feet, and are listed for mine use.
- Four wells located southeast of the facility. The wells are owned by Exxon, were installed in1992, are 40 feet deep, and are listed as unused.
- Three wells located northeast of the facility. The wells are owned by Russell Stover Candies, were installed in 1991, are 37 to 41 feet deep, and are for mine use.

Wells listed for mining use appear to be groundwater monitoring wells, based on the depth and type of well installed (relatively shallow, polyvinyl chloride [PVC] screened wells), the current property use in the area, and the nature of the listed well owners. The wells appear to be drilled in the Allentown or Leithsville Formations, which are limestone/dolomite and dolomite, respectively.

There have been no groundwater investigations conducted at the facility; therefore, depth to groundwater and the direction of groundwater flow is unknown. Based on the surrounding topography and location of large surface water bodies, it is expected that shallow groundwater flow would be to the northwest toward Little Lehigh Creek.

Residential, commercial, industrial and municipal users in the City of Allentown (City) are provided with a dependable and adequate supply of drinking water and water pressure by the City's Bureau of Water Resources (BWR). The BWR operates a water filtration plant which treats up to 30 million gallon of water per day. The plant draws water from two surface water sources, the Little Lehigh Creek and the Lehigh River, and two groundwater sources, Schantz and Crystal Springs. The surface water intakes and the springs are located greater than one mile downstream of the facility.

Information obtained from the Pennsylvania Department of Conservation and Natural Resources (DCNR) Groundwater Information System (PaGWIS) accessed on March 15, 2011 identified 19 groundwater wells located within a 0.5 mile radius surrounding the facility. The wells included:

- Four wells located west of the facility. The wells are owned by United Service Station, were installed in 1989, are 25 feet deep, and are listed for mine use.
- Eight wells located directly south of the facility. The wells are owned by Crystal Brands, were installed in 1992, range in depth from 35 to 100 feet, and are listed for mine use.
- Four wells located southeast of the facility. The wells are owned by Exxon, were installed in1992, are 40 feet deep, and are listed as unused.
- Three wells located northeast of the facility. The wells are owned by Russell Stover Candies, were installed in 1991, are 37 to 41 feet deep, and are for mine use.

Wells listed for mining use appear to be groundwater monitoring wells, based on the depth and type of well installed (relatively shallow, PVC screened wells), the current property use in the area, and the nature of the listed well owners. The wells appear to be drilled in the Allentown or Leithsville Formations, which are limestone/dolomite and dolomite, respectively.

Based on information provided above (no reported releases to groundwater, the facility and neighboring properties are connected to the public water supply, and there are no public water sources located within 0.5 miles of the facility) Therefore, it is concluded that no exposure pathway controls are relevant for the groundwater exposure pathway.

Soil: Information obtained from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (accessed April 12, 2012) indicates that the facility is underlain by Urban Land soils (0 to 8 percent slopes). Depth to lithic bedrock ranges from one to eight feet below ground surface. Approximately 45 percent of the property is covered with permanent impermeable surfaces (the existing building and paved employee parking areas). The remaining 55 percent is grass covered or heavily wooded. The operational area of the facility is surrounded by a six-foot high chain-link fence.

All of the facility's processes are conducted inside the building and within secondary containment areas. . The releases that occurred in 1998 and 2010 outside of the facility were immediately cleaned up. There was no reported impact to soil resulting from the mercury release, and discharge to the drainage swale was of treated wastewater that was being stored for discharge to the City's sewer system. It is believed that this release to soil was of minor significance. Therefore, no exposure pathway or release controls are relevant for the soil exposure pathway.

Surface Water/Sediment: PADEP issued NPDES permit PAR232210 for discharges of storm water from industrial activities to an unnamed intermittent drainage stream on November 7, 1992. On August 18, 2006, the permit was renewed

through February 26, 2012. The facility is subject to Appendix J monitoring requirements and best management practices. The facility is located approximately one mile southeast of Little Lehigh Creek and approximately one mile southwest of an unnamed tributary of Trout Creek, a tributary of Little Lehigh Creek. Based on information obtained from PADEP eMapPA (accessed July 11, 2011), Trout Creek is a high quality cold water fishery, but is a non-attaining segment on the streams integrated list impaired for aquatic life due to urban runoff/storm sewers – siltation and hydromodification/flow alterations. Little Lehigh Creek is a high quality cold water fishery and a trout stocked stream, and is listed as an attaining segment supporting potable water supply; however, the stream is also listed as a non-attaining segment impaired for aquatic life due to urban runoff/storm sewers – siltation. As previously discussed, Little Lehigh Creek is one of the BWR's sources; however, the intake is located greater than one mile downstream of the facility.

Although there were two releases reported outside the facility building, there was no reported releases to the nearby surface water bodies or to groundwater that may discharge to the nearby surface water bodies. Therefore, it is concluded that no controls are relevant for the surface water/sediment exposure pathway.

Air: The facility does not maintain any air permits. A determination of minor significance was issued by PADEP for the facility. However, the facility uses several modes of dust collection/mercury vapor filtration units at the facility. The units incorporate particle and carbon filtration to capture mercury material and vapor. The facility maintains air emission control devices including: bag house filters, high efficiency particulate air (HEPA) filters and carbon filters. Air is circulated through the building. Indoor air quality is monitored every two hours on a daily basis using handheld meters. Designated employees walk through facility and log the measurements. Measurements recorded above the Occupational Safety and Health Administration (OSHA) permissible exposure limits (PEL) are mitigated and the causes/actions taken are recorded on the daily logs. Employees are monitored quarterly for mercury via blood/urine testing. There have been no reported releases.

The nearest residential areas are located greater than 0.25 miles to the north and east. Determinations of minor significance were issued for emissions from the facility's air handling systems. There have been no documented releases to outdoor air at the facility. In addition, mercury vapor monitoring is conducted daily at numerous pre-determined locations throughout the interior of the building in accordance with the facility's daily air monitoring program.

The facility's waste handling and processing activities are conducted inside of the building within secondary containment areas. No floor drains are present in the waste handling or process areas. Two releases were documented outside of the building. In 1998, approximately 750 gallons of treated wastewater was discharged to the asphalt-paved parking area. Several hundred gallons flowed into the swale located on the southern property boundary. Results for samples of the discharge showed mercury levels ranging from non-detect to 0.11 mg/L. The wastewater was pumped into totes and discharged into the City's sewer system. None of the wastewater reportedly entered the connecting water course, and no impact to groundwater was reported.

One additional release was reported in 2011. Beads of metallic mercury were released from a container on a transport vehicle (not a regulated unit) when it arrived at the facility. The mercury was contained on the asphalt parking area and was immediately vacuumed up by AERC.

No subsurface sampling was conducted; however, it is not expected that soil or groundwater was contaminated by the releases that would create a vapor intrusion issue into the onsite or neighboring buildings. In addition, as previously stated, air monitoring is conducted inside of the building on a daily basis. Accordingly, it is concluded that controls are not necessary for the vapor intrusion exposure pathway.

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):

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.

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 HumanExposures" are expected to be "Under Control" at the **AERC.com, Inc. (dba AERC Recycling Solutions)** facility, EPA ID # **PAD987367216**, located at **2591 Mitchell Avenue, Allentown, PA 18103** 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 11/21/12

(print) Khai M. Dao

(title) EPA Project Manager

Supervisor (signature) _____ Date 11-23-12

(print) Paul Gotthold

(title) Assoc. Director, PA Remediation Branch

(EPA Region or State) EPA Region 3

Locations where References may be found:

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

PADEP
North East Regional Office
2 Public Square
Wilkes-Barre, PA 18701

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.