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: **James Spring & Wire Company**
Facility Address: **6 Bacton Hill Road, Frazer, PA 19355**
Facility EPA ID #: **PAD002331635**

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 #8 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			Groundwater contaminated with PCE at concentrations above the MCL and/or Act 2 MSC for groundwater in a Residential Used-Aquifer.
Air (indoors)[2]		X		Potential risk to indoor air quality was assessed. Indoor air quality is not impacted by releases
Surface Soil (e.g., <2 ft)		X		No Releases Documented
Surface Water		X		No Releases documented
Sediment		X		No Releases documented
Subsurf. Soil (e.g., >2 ft)	X			Subsurface soil is contaminated with Cadmium at concentrations above the EPA Region 3 residential soil RBC and below the EPA Region 3 industrial soil RBC and with chromium at concentrations above the EPA Region 3 industrial soil RBC
Air (outdoors)		X		No Releases documented

☐ 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.

Rationale and Reference(s):

Background:

The facility is located within a primarily rural/residential area of East Whiteland Township, Chester County. Light commercial facilities are located along Bacton Hill Road to the north, east and south in the immediate vicinity of the facility. Access to the 5-acres property is via North Bacton Hill Road. The facility consists of a 3,200 - square foot masonry and steel building that was constructed in 1961 on a concrete foundation on-grade. The site is 70 percent covered by buildings and pavement. James Spring & Wire Company, Inc. (James Spring) has manufactured springs, wire forms, and light-gage metal stampings at the Frazer, PA location since 1961. Current production processes at the facility include spring grinding, cleaning, passivation, heat treating, assembly and special packaging. The facility also performs surface treatments on steel parts including rust preventive and deburring. Prior to 1997, production processes conducted at the facility also included metal plating. Cyanide was used in the cadmium plating process.

Prior to 1975, waste effluent generated by the plating process was collected in three septic tanks located beneath the building in the plating area. The liquid from these tanks discharged to the facility's drain field. In 1975, the septic system was abandoned and replaced with an on-site closed-loop WWST. The closed-loop system was designed to treat plating

drag-out and rinse water containing cadmium oxide, sodium hydroxide, spent oil, sodium cyanide, and zinc cyanide. The cadmium plating line and the closed-loop WWST were decommissioned in the spring of 1997. In February 1997, a closed-loop citric acid stainless steel cleaning operation was installed at the facility. A nitric acid cleaning operation is also employed at the facility for medical customers requiring that process.

Investigations and Remediation Actions

In May 1991, a 10,000- gallon steel UST containing No. 2 heating oil was removed from the facility by T.E.L enterprise, Inc. The UST and piping was intact upon removal. Confirmation soil samples beneath the UST location were collected and analyzed for TPH. No indication of contamination identified. On January 14, 1992, PADEP issued a No Further Action letter to the facility for closure of the UST.

Subsurface investigation was performed at the facility in 1997. Soil and groundwater found contaminated with RCRA metals and VOCs. (Act 2 Final Report dated August 2002 prepared for James Spring and Wire Company, Frazer, PA by RT Environmental Services, Inc.)

Soil samples results indicated that cadmium was detected at concentrations as high as 160 mg/kg, above the EPA Region 3 residential soil RBC (70 mg/kg) but below the EPA Region 3 industrial soil RBC (800 mg/kg), and chromium was detected at concentrations as high as 340 mg/kg, above the EPA Region 3 industrial RBC (5.6 mg/kg) and residential soil RBC (0.29 mg/kg). Contaminated soil is capped with site building and soils are not exposed for human direct contact and are located in a non-residential area.

Groundwater samples results indicated that tetrachloroethylene (PCE) was detected at concentrations as high as 130 ug/l, above the MCL of 5 ug/l. Groundwater contamination is confined to the facility's property. (Act 2 Final Report dated August 2002 prepared for James Spring & Wire Company, Frazer, PA by RT Environmental Services, Inc. and RT Environmental Services, Inc. June 25, 2013 Groundwater Sampling Results).

Footnotes:

[1] "Contamination" and "contaminated" describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based "levels" (for the media, that identify risks within the acceptable risk range).

[2] Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.

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

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	No	No	No	No	No	No	No
~~Air (indoors)~~							
~~Soil (surface, e.g., <2 ft)~~							
~~Surface Water~~							
~~Sediment~~							
Soil (subsurface e.g., >2 ft)	No	No	No	No	No	No	No
~~Air (outdoors)~~							

Instructions for Summary Exposure Pathway Evaluation Table:

1. Strike-out specific Media including Human Receptors' spaces for Media which are not "contaminated" as identified in #2 above.

2. enter "yes" or "no" for potential "completeness" under each "Contaminated" Media -- Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential "Contaminated" Media - Human Receptor combinations (Pathways) do not have check spaces ("___"). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

☒ If no (pathways are not complete for any contaminated media-receptor combination) - skip to #6, and enter "YE" status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g., use optional Pathway Evaluation Work Sheet to analyze major pathways).

☐ 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):

Groundwater sampling results have shown that groundwater contamination is confined to the facility's property and the concentrations of PCE are reducing. During the May, 2013 groundwater sampling event, PCE was detected at only one well at concentration of 29 ug/l, above the MCL of 5 ug/l, and non-detect at other wells. (RT Environmental Services, Inc. 's June 25, 2013 correspondence). Use of the groundwater at the facility is restricted by the Deed Restriction precluding the use of groundwater at the facility for domestic or agricultural purposes. The human pathway exposure to contaminated groundwater is not complete.

Soil samples results indicated that cadmium was detected at concentrations as high as 160 mg/kg, above the EPA Region 3 residential soil RBC (70 mg/kg) but below the EPA Region 3 industrial soil RBC (800 mg/kg), and chromium was detected

at concentrations as high as 340 mg/kg, above the EPA Region 3 industrial RBC (5.6 mg/kg) and residential soil RBC (0.29 mg/kg). Contaminated soil is capped with site building and is located in a non-residential area. The human pathway exposure to contaminated soil is not complete.

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

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

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.

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

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):

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

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 (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 _James Spring & Wire Company facility, EPA ID # PAD002331635, located at 6 Bacton Hill Road, Frazer, PA 19355 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 _____ Date 8-14-2013
Tran Tran
RCRA Project Manager

Supervisor _____ Date 8-14-2013
Paul Gotthold
Associate Director
EPA Region 3

Locations where References may be found:

US EPA Region III
Land & Chemicals Division
1650 Arch Street
Philadelphia, PA 19103

Contact telephone and e-mail numbers

Tran Tran
215-814-2079
tran.tran@epa.gov