

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: Sparton Technology, Inc.
Facility Address: 9621 Coors Road NW Albuquerque, New Mexico 87114
Facility EPA ID#: NMD083212332

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).

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)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale / Key Contaminants</u>
Groundwater	<u>✓</u>	<u>---</u>	<u>---</u>	<u>Trichloroethylene (main contaminant)</u>
Air (indoors) ²	<u>---</u>	<u>✓</u>	<u>---</u>	<u>Shallow soil gas concentrations are low</u>
Surface Soil (e.g., <2 ft)	<u>✓</u>	<u>---</u>	<u>---</u>	<u>Trichloroethylene (main contaminant)</u>
Surface Water	<u>---</u>	<u>✓</u>	<u>---</u>	<u>Contamination does not intersect surface water</u>
Sediment	<u>---</u>	<u>✓</u>	<u>---</u>	<u>Release occurred in subsurface soils</u>
Subsurf Soil (e.g., >2 ft)	<u>✓</u>	<u>---</u>	<u>---</u>	<u>Trichloroethylene (main contaminant)</u>
Air (outdoors)	<u>---</u>	<u>✓</u>	<u>---</u>	<u>Shallow soil gas concentrations are low</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.

✓ 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):

Ground Water: From 1983 to 1984, 17 monitoring wells were installed at the facility. Analyses of ground water samples collected from these wells detected the contaminants presented in Table 1.

Chemical	Concentration (ppb)	MCL (ppb)	WQCC ¹ (ppb)
Trichloroethylene	27 - 90,900	5	100
1,1,1-Trichloroethane	7 - 54,900	200	60
Methylene Chloride	11 - 78,400	N/A	100
1,1-Dichloroethylene	18 - 31,600	7	5
Tetrachloroethylene	17 - 953	5	N/A
Toluene	5 - 4,720	5	10
Benzene	20 - 193	1000	750
Chromium	22 - 32,100	100	50

¹New Mexico Water Quality Control Commission (WQCC) Standards

Since 1984, consistent ground water monitoring has been performed along with the completion of additional monitoring wells. Currently (i.e., July 1999), including both on-site and off-site, there are approximately 60 monitoring wells. According to ground water samples collected in May 1999, the

contaminant plume extends approximately ½ mile from the facility and has a maximum concentration of 10,000 ppb for Trichloroethylene in the off-site portion of the plume.

Subsurface Soil (i.e., >2 ft): Investigations concerning soil gas indicate that there are still areas within the subsurface that are slightly above protective risk based levels. Specifically, some soil gas samples have levels above 10 ppmv of trichloroethylene which has been determined to be a protective level concerning continuing transfer of contaminants from the vadose zone to ground water. Surface soil (i.e., <2 ft.) have soil gas concentrations of less than 10 ppmv of trichloroethylene.

References: EPA Final Decision and Response to Comments - June 24, 1996
Final Administrative Order - February 10, 1998
Administrative Record supporting the Final Administrative Order of February 10, 1998
Report on Soil Gas Characterization and Vapor Extraction System Pilot Testing,
prepared by Pierce L. Chandler, Jr., June 16, 1997
Vadose Zone Investigation Report for Sparton Technology, Inc., June 17, 1999

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

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.

- X Ifno (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).
- _____ Ifyes (pathways are complete for any “Contaminated” Media - Human Receptor combination) - continue after providing supporting explanation.
- _____ Ifunknown (for any “Contaminated” Media - Human Receptor combination) - skip to #6 and enter “IN” status code

Rationale: The facility as well as the local, state, and federal governments have had knowledge of the contamination at the site for approximately 15 years. Based upon this awareness, the City of Albuquerque or the New Mexico Utilities Corporation, the parties responsible for supplying public water supply, have not completed water supply wells within the area near the facility. Water supply in the area comes from other City of Albuquerque or New Mexico Utilities Corporation supply systems. Since the facility has been aware of the contamination (i.e., mid-1980's), workers develop appropriate health and safety plans if intrusive work has to be performed at or near the facility. Facility implemented a soil vapor extraction system for the majority of 1998 and is required to upgrade and implement a soil vapor extraction system under the March 3, 2000, U.S. District Court Consent Decree.

References: EPA Final Decision and Response to Comments - June 24, 1996
 Final Administrative Order - February 10, 1998
 Administrative Record supporting the Final Administrative Order of February 10, 1998

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.

