



RDMS DocID 106710

RCRA RECORDS CENTER
FACILITY Teknicircuits Inc
I.D. NO. CTD 05 3 70 7741
FILE LOC. R-13
SERIAL 106710

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: Teknicircuits, Inc.
Facility Address: 84 Shelter Rock Road, Danbury, CT 06810
Facility EPA ID #: CTD053707741

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?

XXX If yes - check here and continue with #2 below.

_____ If no - re-evaluate existing data, or

_____ if data are not available skip to #6 and enter "IN" (more information needed) status code.

BACKGROUND

Definition of Environmental Indicators (for the RCRA Corrective Action)

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

Definition of "Current Human Exposures Under Control" EI

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

Relationship of EI to Final Remedies

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near term objectives, which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

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2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be “contaminated”¹ above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

| | Yes | No | ? | Rationale / Key Contaminants |
|-------------------------------|-----|-----|---|---|
| Groundwater | XXX | | | 1,1-Dichloroethane 1,1,1-Trichloroethane 1,1-Dichloroethylene |
| Air (indoors) ² | | XXX | | |
| Soil (surface, e.g., <2 ft) | XXX | | | Loading Dock – Copper above RDEC |
| Surface Water | | XXX | | |
| Sediment | | XXX | | |
| Soil (subsurface e.g., >2 ft) | XXX | | | SWMU’s 7&8 – Copper above RDEC |
| Air (outdoors) | | XXX | | |

_____ 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.

XXX 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):

As a result of current investigation, Teknicircuits, Inc., has concluded that hazardous waste constituents have been released to the surface and subsurface soil and groundwater at the facility.

Groundwater

Groundwater, in the vicinity of the facility is classified as a GB area and is presumed not suitable for use as a current or potential source of drinking water, and is subject to the GB Groundwater Objectives for the State of Connecticut. No direct users of the groundwater are within the area. The nearest active well according to the Danbury Water Department is approximately 8,000 feet to the northwest (up gradient of the site). In addition, the Danbury Water Department stated that a municipal ordinance, on the records since 1940’s, forbids the construction and use of new wells in areas served by city water.

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.

Groundwater at the site has been investigated to determine if the historic sludge drying beds (SWMUs 7 and 8) and operations at the facility has been impacted through releases. The investigation has not identified any such releases to the groundwater from the site. However, groundwater in three monitoring wells (CEE – 4, 6, and 15) is above the Connecticut Department of Environmental Protection regulations concerning Remediation Standards (CT RSR) for 1,1-Dichloroethane, 1,1-Dichloroethylene, and 1,1,1-trichloroethane. According to the Facility, these levels exceeding the CT RSR are attributable to an off-site source. The source has not been identified and the Facility presumes it to be from the northeast or east of the site, however, this has not been confirmed. Monitoring data acquired since 1989 does suggest a steady decline.

Groundwater at the site is currently considered stabilized. See CA750. Dated 9/25/02.

Indoor Air

Groundwater monitoring demonstrates that groundwater contamination is not present under the footprint of the Teknicircuit building. However, because of migration of groundwater off-site, indoor air is a concern at the property abutting Teknicircuit’s western border, owned by Industrial Electric Motors (IEM) located at 85 Shelter Rock Road, in Danbury, CT. On November 4th, 2002, Teknicircuit sampled indoor air at two locations within the IEM building to demonstrate that there is no exposure pathway via indoor air at the abutting property.

If contaminated groundwater emitted vapors that migrate through subsurface soils and into indoor air spaces of the building this would create a complete exposure pathway. Therefore we would expect the indoor air test results to indicate the presence of 1,1-Dichloroethylene, 1,1-Dichloroethane, and/or 1,1,1-Trichloroethane including their transformation products. However, the test result only indicated the presence of methylene chloride and trichloroethylene at both sampling locations. These compounds were not detected in the field blank and are below their respective OSHA PEL. In comparing the contaminants in groundwater (1,1-Dichloroethylene; 1,1-Dichloroethane; and 1,1,1-Trichloroethane) found within the three monitoring wells (CEE – 4, 6, and 15) to those identified in indoor air samples (methylene chloride and trichloroethane), the contaminants of concern in indoor air cannot be attributed to volatilization of VOCs from groundwater. Hence there is no exposure pathway from indoor air that can be attributed to Teknicircuit at either property.

| | Sample 1 | Sample 2 | PEL (ppm) | 1%PEL (ppm) | Conversion | 1%PEL (mg/m ³) |
|--------------------|----------|----------|-----------|-------------|-------------------------------|----------------------------|
| Methylene Chloride | 3.2 | 2.67 | 25 | 0.25 | 3.47 mg/m ³ = 1ppm | 0.868 mg/m ³ |
| Trichloroethene | 0.73 | 1.13 | 100 | 1 | 5.37m ³ = 1ppm | 5.37 mg/m ³ |

Soil (surface, e.g. < 2ft)

Loading Dock – Total copper is the only metal detected on a mass basis above the Connecticut Remediation Standard Regulations Residential Direct Exposure Criteria (RDEC). The total copper concentration in Sample 05 (RAP980416-05) was 2,630 mg/kg, slightly above the RDEC of 2,500 mg/kg and is below the Industrial Direct Exposure Criteria (IDEC)76,000 mg/kg.

Surface Water

Discharge or groundwater into surface water is determined to be “currently acceptable”. See CA750. Dated 9/25/02.

Sediments

Sediments containing ppb-levels of non-persistent (log₁₀ K_{OW} < 3), photodegradable, non-polar **volatile organics** are not of ecological concern and further remedial investigation or remediation would not be warranted.

Soil (subsurface e.g., >2 ft)

SWMUs 7 and 8 – Both SWMUs have been eliminated from the site along with any related contaminated soil. Residual VOC and metal contamination remains in soil at a few sporadic locations in the tank graves, in the case of VOC's the levels were well below the RDEC and pollutant mobility criteria for class GB ground water quality areas. The single occurrence of copper above the RDEC, but below the IDEC, is in inaccessible soil.

Air Outdoor – Not likely, however, not sampled.

References:

Demonstration Of No Further Action VOC's In Groundwater, Charter Oak Environmental Services, Inc., September 1998.

Assessment Monitoring Report, Consulting Environmental Engineers, Inc. August 1991.

RCRA Corrective Action Voluntary Program – Investigation of AEC 16 and Loading Dock, Consulting Environmental Engineers, Inc., June 12, 1998.

RCRA Corrective Action Voluntary Program – Investigation of SWMU's 3,4,5,6,9,10, 11, 12, 13, 14, and 15; AEC's 16, 17, and 18, Consulting Environmental Engineers, Inc., June 25, 1997.

EML Report:021104-TEK-B, November 21, 2002.

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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

| Contaminated Media | Potential Human Receptors (Under Current Conditions) | | | | | | |
|-------------------------------|--|---------|----------|--------------|-------------|------------|-------------------|
| | Residents | Workers | Day-Care | Construction | Trespassers | Recreation | Food ³ |
| Groundwater | NO | NO | NO | YES | NO | NO | NO |
| Air (indoors) | | | | | | | |
| Soil (surface, e.g., <2 ft) | NO | NO | NO | YES | NO | NO | NO |
| Surface Water | | | | | | | |
| Sediment | | | | | | | |
| Soil (subsurface e.g., >2 ft) | NO | NO | NO | YES | 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).

XXX 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.)

Complete exposure pathways for soil and groundwater in regards to potential human receptors for residents, on-site workers, day-care, trespassers, and recreation are not reasonably expected for the following reasons:

- The site is situated in an industrial parkway (zoned industrial) with no residences nearby;
- There is no residential use of the site property;
- Surface soil samples do not pose a risk to human health;
- Day-care, recreation, and food production are not a potential uses of the property.
- Trespassing is not reasonably expected to occur.

Construction workers could potentially be exposed to groundwater and subsurface soils if any type of subsurface excavation was done on site. Currently, there is not such construction occurring onsite, however, in the event of such activity, the use of personal protective equipment would minimize any possible exposure.

Indoor air, surface water, sediments, and outdoor air categories have been determined to not be “contaminated” above appropriately protective risk-based “levels” (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) as demonstrated in question two. Therefore, these categories have been removed from consideration within this section.

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4 Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be **“significant”**⁴ (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

XXX If no (exposures can not be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) - skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) - continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”

_____ If unknown (for any complete pathway) - skip to #6 and enter “IN” status code

Rationale and Reference(s):

⁴ If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

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5 Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

_____ If yes (all “significant” exposures have been shown to be within acceptable limits) - continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g., a site-specific Human Health Risk Assessment).

_____ If no (there are current exposures that can be reasonably expected to be “unacceptable”)- continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

_____ If unknown (for any potentially “unacceptable” exposure) - continue and enter “IN” status code

Rationale and Reference(s):

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6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

XXX 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 Teknicircuits, Inc., facility, EPA ID # CTD053707741, located at 84 Shelter Rock Road, Danbury, CT, 06810 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) Edgar A. Davis Date May 1, 2003
(print) Edgar A. Davis
(title) RCRA Facility Manager

Supervisor (signature) Matthew Hoagland Date 9/15/03
(print) Matthew Hoagland
(title) Section Chief, RCRA CA Program
(EPA Region) Region I - New England Office

Locations where References may be found:

United States Environmental Protection Agency - Region I - New England Office
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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.