

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

**RCRA Corrective Action**  
**Environmental Indicator (EI) RCRAInfo code (CA725)**  
**Current Human Exposures Under Control**

**Facility Name:** Xerox Corporation, Joseph C. Wilson Center for Technology - Webster  
**Facility Address:** 800 Phillips Road, Webster, New York 14580  
**Facility EPA ID #:** NYD0022111324

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

**Facility Background Description:**

The facility occupies approximately 1000 acres of land in the Town of Webster. The areas adjacent to the site on the east, south and west are mixed use and are zoned for industrial, commercial, residential and farm uses. The area to the north of the site is zoned for residential and farming uses. Activities at the facility include research, development and the manufacturing and/or refurbishing of electrostatic copying machines and associated consumable materials (such as toner). Operations began in 1956. Xerox operates hazardous waste tanks and container storage areas in accordance with a 373-2 Hazardous Waste Management Permit. Groundwater monitoring and corrective action is also performed under the authority of the Permit. One hundred and five (106) Solid Waste Management Units have been identified, of which eighty (80) of the units have been categorized as requiring no further action. Volatile organic contaminants are the primary concern at each of the Investigative sites. Metals contamination is also present, to a lesser extent. The corrective action program addresses environmental contamination at seven (7) major "Investigative Sites", and also addresses contamination at certain other on-site locations (See Figure 1). Numerous corrective measures have been implemented in order to remediate and contain contamination. Implemented measures include conventional pump and treat technology, blasting of bedrock trenches to enhance groundwater recovery, two phase (water/vapor) extraction and removal of source (soils) materials. Groundwater recovery activities were initiated in 1986, and since that time, Xerox has pursued an aggressive corrective action program at this facility. Corrective measures have included the operation of several two-phase extraction systems (at one point, over sixty five wells were utilized) and conventional groundwater recovery. Groundwater recovery rates have been greatly increased through the use of controlled blasting techniques, to increase the permeability of the bedrock through fracturing. Blasted bedrock trenches have been installed at several locations across the facility. The operation of 2-phase extraction systems is gradually being phased out due to mass recovery rates diminishing after several years of operation. Where necessary, conventional pump and treat systems have been installed to replace the 2-phase extraction systems. Soil excavation and removal has been performed at several source area locations. The corrective measures activities have resulted in significant reductions in the size of groundwater contaminant plumes and the concentrations of contaminants in groundwater. A comprehensive groundwater monitoring program has been in effect to provide continuing assessment of groundwater conditions and to gauge the progress of corrective measures. During the 2002 calendar year, thirty-nine million (39,000,000) gallons of contaminated groundwater and eighty-seven million (87,000,000) cubic feet of aspirated air were recovered and treated, resulting in the removal of three hundred and thirty (330) pounds of contaminant mass. (See attached Tables.)

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	<u>_x_</u>	<u>___</u>	<u>___</u>	<u>Analytical data</u>
Air (indoors) <sup>2</sup>	<u>_x_</u>	<u>___</u>	<u>___</u>	<u>Analytical data</u>
Surface Soil (e.g., <2 ft)	<u>_x_</u>	<u>___</u>	<u>___</u>	<u>Analytical data</u>
Surface Water	<u>_x_</u>	<u>___</u>	<u>___</u>	
Sediment	<u>_x_</u>	<u>___</u>	<u>___</u>	<u>Analytical Data</u>
Subsurf. Soil (e.g., >2 ft)	<u>_x_</u>	<u>___</u>	<u>___</u>	<u>Analytical data</u>
Air (outdoors)	<u>___</u>	<u>_x_</u>	<u>___</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: Groundwater monitoring and/or remediation is currently being performed at seven major “Investigative Sites” at this facility. Groundwater is contaminated with various Volatile Organic Contaminants with the primary contaminants being Trichloroethylene, Tetrachloroethylene, 1,1,1-Trichloroethane, 1,1-Dichloroethane, 1,2-Dichloroethene, Toluene and Vinyl Chloride. Total Volatile Organic Contaminants are at concentrations greater than 100,000 ppb at some locations. (See Figure 2 for a depiction of the contaminant distribution and Figure 3 for a depiction of shallow bedrock groundwater contours.) Metals contamination is present (at slightly elevated concentrations) with chromium being the most significant metal contaminant. Soils have also been impacted by Volatile Organic Contaminants and metals, but to a much lesser extent. A small drainage ditch in the vicinity of Building 102 (302 Waste Stream Area) has sediments contaminated with metals above “unrestricted use” action levels, and a small drainage ditch in the vicinity of Building 209 has sediments contaminated with Volatile Organic Contaminants. In October 2002, Xerox implemented an approved indoor air and soil vapor sampling plan (dated July 2002). The results of the sampling plan were provided in the Webster Facility Indoor Air and Soil Vapor Monitoring Report, dated March 2003. (See attached Tables.)

Footnotes:

<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.

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)

<b>“Contaminated” Media</b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	No	No	No	No			No
Air (indoors)	No	Yes	No	Yes			
Soil (surface, e.g., <2 ft)	No	No	No	No	No	No	No

Surface Water	No	No	No	No	No	No	No
Sediment	No	No	No	No	Yes	Yes	
Soil (subsurface e.g., >2 ft)	No	No	No	No	No		No
<del>Air (outdoors)</del>	—	—	—	—	—		

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).
- x   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: A "yes" was marked after Indoor Air because the March 2003 Indoor Air and Soil Vapor Sampling Report indicated that two indoor air sample locations had Trichloroethylene (TCE) concentrations which slightly exceeded the 0.25 ug/m<sup>3</sup> background screening value that the NYSDEC and NYSDOH use when evaluating potential vapor intrusion. A "yes" was marked after sediment due to slightly elevated concentrations of metals that are located in a drainage ditch at the 302 Waste Stream Area. The drainage ditch is adjacent to a recreational area (baseball fields) which is located on-site at the facility. Although the possibility is quite remote, those using the recreational area, or trespassers, could potentially contact the contaminated sediments. Exposure pathways are not complete for any other contaminated media. All other contaminated media (groundwater, soil, soil gas) is located and/or contained on-site. The facility's water needs are supplied by municipal water supply. The facility makes use of a Department accepted Health and Safety Plan and Soil Management Plan to protect employees and contracted workers from contaminated media.

<sup>3</sup> 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**"<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: **Indoor Air** - Implementation of the approved indoor Air/Soil Vapor Sampling Work Plan included the collection of 21 indoor air and soil vapor samples at seven on-site buildings. All of the buildings sampled are used for industrial/manufacturing use, with associated office space. Two samples exceeded the 0.25 ug/m<sup>3</sup> screening value for TCE (24 ug/m<sup>3</sup> and 1.8 ug/m<sup>3</sup>). The detected concentrations of TCE are orders of magnitude below OSHA promulgated standards. Although occupational standards are appropriate for certain exposures in the workplace setting, for workplace settings in which the exposures are related to environmental sources rather than manufacturing processes, NYSDEC and NYSDOH believe that the risk guidelines established by the United States Environmental Protection Agency are also relevant. We strive to minimize exposures in such settings to levels comparable to background values. A follow up letter to Xerox indicated that they should notify employees working in these locations about the detected concentrations of TCE and perform an annual review to identify changes that could affect the migration of soil vapor into indoor areas. **Sediments** - It is unlikely that those using the baseball fields would have a reason to come in contact with the sediments in the drainage ditch. If by chance an individual did come in contact with the contaminated sediments, it would likely be a one time event, and repeated exposure events would be very unlikely. A work plan for additional sampling will be submitted in the near future to determine if any additional actions are necessary at this unit.

<sup>4</sup> 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.

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

\_\_\_\_\_

6. Check the appropriate RCRAInfo 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 Human Exposures" are expected to be "Under Control" at the Xerox Joseph C. Wilson Center for Technology facility, EPA ID # NYD0022111324, located at 800 Phillips Road, Webster, New York 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:    September 30, 2003  
                  (print) Denise Radtke  
                  (title) Engineering Geologist II

Supervisor       (signature) \_\_\_\_\_       Date:    September 30, 2003  
                  (print) William Wertz  
                  (title) Engineering Geologist III  
                  (EPA Region or State) EPA Region II - New York State

Bureau           (signature) \_\_\_\_\_       Date:    September 30, 2003  
Director         (print) Edwin Dassatti  
                  (title) Director, Bureau of Hazardous Waste and Radiation Management  
                  (EPA Region or State) EPA Region II - New York State

References:

Webster Facility Indoor Air and Soil Vapor Monitoring Report, Xerox Corporation, March 2003.

References:

Webster Facility Indoor Air and Soil Vapor Monitoring Report, Xerox Corporation, March 2003.

RCRA Facility Investigation Final Report  
Building 209 Investigative Site 7  
Volumes I and II  
October 1993

Building W-209 RFI Summary Report  
Xerox Corporation  
October 1996

Revised RCRA Facility Investigation (RFI) Report  
Salt Road Remedial Investigation  
July 1989

Declaration Statement - Record of Decision  
Xerox Webster Landfill Site  
September 24, 1988

RCRA Facility Investigation Summary Report  
W208 Investigative Site  
April 1997

RCRA Facility Investigation Final Report  
W208 Investigative Site  
April 1997

RCRA Facility Investigation Data Summary Report  
Building 201/206/218 Investigative Site  
Xerox Corporation  
September 1994

RCRA Facility Investigation Final Report  
Building 201/206/218 Investigative Site  
Xerox Corporation  
Volumes I & II  
September 1994

RCRA Facility Investigation Summary Report  
Building 200 Investigative Site  
October 1994

RCRA Facility Investigation Final Report  
Building 200 Investigation  
October 1994

Final RFI Report  
Investigative Site W119  
Xerox Corporation  
December 1993

Groundwater Monitoring Program  
Major Report  
1 January to 31 December, 2002  
for Xerox Facility  
May 2003

NOTE: Annual and Semi-annual Groundwater Monitoring Reports have been submitted for more than 10 years and are available to the public.

Locations where References may be found:

New York State Department of Environmental Conservation, Central Office  
625 Broadway, 8<sup>th</sup> Floor  
Albany, New York 12233-7258

New York State Department of Environmental Conservation - Regional Headquarters  
6274 East Avon-Lima Road  
Avon, New York 14414

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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.**