DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

Revised 1/25/02

RCRA Corrective Action
Environmental Indicator (EI) RCRIS code (CA725)

Current Human Exposures Under Control

Facility Name: **International Business Machines (Lockheed Martin Federal Systems)**
Facility Address: **Route 17 C, Owego, New York**
Facility EPA ID #: **NYD986874501**

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).

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_	___	___	Analytical data
Air (indoors)[2]	___	_x_	___	Analytical data
Surface Soil (e.g., <2 ft)	_x_	___	___	Analytical data
Surface Water	___	_x_	___	_____
Sediment	___	_x_	___	_____
Subsurf. Soil (e.g., >2 ft)	_x_	___	___	Analytical data
Air (outdoors)	___	_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.

__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 and Reference(s):

Groundwater monitoring has been performed at the facility for over fifteen years. Data from the current groundwater monitoring program is reported on a semi-annual basis. Constituents of concern are Volatile Organic Contaminants (VOCs), primarily Trichloroethylene, 1,1,1-Trichloroethane and associated breakdown products. Currently, the maximum concentration for total VOCs is approximately 50,000 ppb in the source area. This is a significant reduction from historical total VOC concentrations of approximately 500,000 ppb.

Soil sampling at the former Waste Treatment Plant Area indicated concentrations of Copper which exceeded the action levels (in both surface soils and at deeper intervals). Concentrations were only slightly elevated, and further remedial activities are currently not being required. The copper contamination is located on-site, and access is restricted. Any invasive activities, by IBM or Lockheed-Martin (the current owner) must be performed in accordance with a soil management agreement which requires special precautions and health and safety measures.

References:

RCRA Facility Investigation Task I Report - Description of Current Conditions, July 1992.

RCRA Facility Assessment - Final Report, August 1993.

Groundwater Monitoring Program Annual and Semi-Annual Reports (submitted in February and August of each year).

RCRA Facility Investigation - Former Waste Treatment Plant, Owego, New York, September 27, 1995

6NYCRR 373-2 Hazardous Waste Management Permit (Permit # 7-4930-00016/00074-0).

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.

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

__**x**__ 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 contamination is contained by the groundwater recovery system. All groundwater users in the area are on public water supply. Soil contamination is at very low concentrations and is limited to one on-site area, which is secure (access restricted) and is managed in accordance with a soil management plan. Construction workers are protected by the provisions in soil management plan. This is an agreement between the current owner (Lockheed-Martin)and IBM that requires a full review of necessary health and safety precautions prior to any invasive activities. Indoor air could potentially impact only on-site workers, since the plume is contained on-site. Indoor air testing was conducted at Building 309 on January 30, 2001. Building 309 was selected for testing since it was believed to represent the worse case scenario for potential indoor air impacts. Although methylene chloride was detected at concentrations which were slightly above New York State background value, the

detected concentrations were below EPA's $1x10^{-6}$ risk concentration. The concentrations were also below the screening level referenced in EPA's draft Vapor Intrusion Guidance (dated October 23, 2001). The source of the methylene chloride detections is unknown, since methylene chloride was also detected in outdoor samples which were collected concurrently with indoor air samples.

References:

RCRA Facility Investigation Task I Report - Description of Current Conditions, July 1992.

RCRA Facility Assessment - Final Report, August 1993.

Groundwater Monitoring Program Annual and Semi-Annual Reports (submitted in February and August of each year).

RCRA Facility Investigation - Former Waste Treatment Plant, Owego, New York, September 27, 1995

Indoor Air Sampling Report for the Former IBM Owego Facility, March 29, 2001.

Supplemental Guidance for Evaluating the Vapor Intrusion to Indoor Air Pathway, United States Environmental Protection Agency, October 23, 2001.

6NYCRR 373-2 Hazardous Waste Management Permit (Permit # 7-4930-00016/00074-0).

[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)?

__x__ 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): No indoor air information.

[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.

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 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 Human Exposures" are expected to be "Under Control" at the IBM Owego (Lockheed Martin Federal Systems) facility, EPA ID # NYD986874501, located at Route 17C, Owego, 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: January 25, 2002
(print) Denise Radtke
(title) Engineering Geologist II

Supervisor (signature) _____ Date: January 25, 2002
(print)Paul J. Merges, Ph.D.
(title) Director, Bureau of Radiation and Hazardous Site Management
(EPA Region or State) EPA Region II - New York State Department of Environmental Conservation

Locations where References may be found:

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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.