

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

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

**Facility Name:** Mercury Refining Company, Inc. (MERECO)

**Facility Address:** 26 Railroad Avenue, Albany, NY

**Facility EPA ID#:** NYD048148175

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.

#### **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 EIs 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 objectives of the RCRA Corrective Action program the EIs 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 is 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 programs 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 Determination status codes should remain in the 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”<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	✓			Superfund Risk Assessment/ Mercury detected in GW at 22.5 ppb. (The MCL is 2 ppb.)
Air (indoors) <sup>2</sup>	✓			Superfund Risk Assessment determined an hazard index of 30/Mercury was detected in the indoor air at 16 ug/m <sup>3</sup> .
Surface Soil (e.g., <2 ft)	✓			
Surface Water		✓		
Sediment	✓			PCB detected in pond sediment at 4.4 ppm in one sample. This is not deemed sufficient evidence to make a connection between PCB contamination and the site. Elevated concentrations of Mercury were found in the creek sediment adjacent to the outfall.
Subsurf. Soil (e.g., >2 ft)	✓			Superfund Risk Assessment/Mercury detected in the subsurface in pure state as beads and globules.
Air (outdoors)			✓	

\_\_\_\_\_ 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):** A Superfund remedial investigation (RI) of the site was performed by EPA from 2000 to 2004. The RI found mercury contamination in groundwater, surface and subsurface soil and in indoor air, and mercury and PCB contamination in creek and pond sediment.. See Remedial Investigation Report, dated February 28, 2003 and Superfund Risk Assessment Report, dated June 18, 2003.

## BACKGROUND

### Site Description:

The MERECO property is an approximately 0.68 acre facility located on the border between the Town of Colonie and the City of Albany, in Albany County, New York. (Please refer to Figures 1, 2, and 3). The areas to the north, east, and west of the site are principally light industrial with some commercial use and warehousing. An unnamed tributary to Patroon Creek and active railroad tracks form the southern boundary of the site. The tributary of Patroon Creek adjacent to the site extends

from Inga's Pond to its confluence with Patroon Creek and is approximately 4,700 feet in length. The MERECO facility is approximately 1600 feet upstream of Patroon Creek.

Operations at MERECO began in 1955. Processes consisted of receipt and storage of hazardous wastes from off-site, reclaiming silver and other precious metals, and reclaiming metallic mercury from off-specification metallic mercury, mercury batteries and other mercury-bearing wastes. From 1998 until early 2003, Mercury Waste Solutions (MWS) had leased a portion of the property from MERECO, and operated a mercury reclaiming operation at the site. The facility currently is used solely by MERECO for reclaiming silver from silver/mercury batteries. Other precious metals are also reclaimed. They recover gold from computer circuit boards and platinum from jewelry. Upon receipt of used batteries for recycling, MERECO sends the batteries to others for mercury recovery. The batteries are then returned to MERECO for silver recovery.

#### Site Responsibility and Legal Instruments:

The facility was regulated by a New York State hazardous waste permit that imposed general operating conditions upon the facility and corrective action requirements for past releases. A New York State Consent Order was signed on May 8, 1998, which required MERECO to manage the investigation and any required cleanup. Hazardous waste management activities discontinued in the year 2003, and the portion of the facility involved in hazardous waste management was certified closed on September 30, 2003. Additionally, the New York State Department of Environmental Conservation terminated the facility's authority to operate as a Hazardous Waste Treatment, Storage, and Disposal Facility on September 30, 2003. This facility currently is a Superfund NPL site, and its cleanup is being managed by the EPA Region 2 Superfund program.

#### **Potential Threats and Contaminants:**

##### **Contaminants:**

Mercury contamination of the soil, groundwater, sediments, and indoor air. PCB contamination of the sediments.

##### **Potential Threats From Contaminated Groundwater:**

None. There are no known private potable water supply wells near the site. The entire area is currently supplied with potable water from the Latham Water District public water supply derived from a surface water reservoir approximately 5 miles northeast of the site.

Although mercury was detected on the Mercury Refining property in monitoring well MW5, it should be noted that MW5 was installed in an area of highly contaminated soil. Groundwater samples collected from nine other monitoring wells which are located up gradient and down gradient of MW5 do not exceed the federal maximum contaminant level (MCL) of 2 ppb. Additionally, surface water samples from the Patroon Creek Tributary and Patroon Creek did not reveal the presence of mercury. (Please see Remedial Investigation Report, dated February 28, 2003, as well as the *Documentation of Environmental Indicator Determination, Migration of Contaminated Groundwater Under Control*, dated September 30, 2004.

**Potential Threats From Contaminated Soil:**

There is no current threat from contaminated soil because the contaminated soil is covered with asphalt and concrete.

**Potential Threats From Contaminated Sediment:**

Adults and children may be exposed to an unacceptable risk from ingesting contaminated fish from a creek which runs along the southern portion of Mercury Refining and from a downstream pond into which the creek flows. Elevated levels of mercury and PCBs were detected in the sediments during the RI, and the sediments may be contaminating the fish.

The source of the PCBs (which are of a greater risk in the Creek/Pond sediment than the mercury) has not been linked to the Mercury Refining facility. This is further reinforced by the finding of Aroclors [PCB compounds] in only one sediment sample in the pond adjacent to the site; two Aroclor compounds were found in this sample, of which one of these Aroclor compounds was not historically used at the Mercury Refining site.

The mercury contamination in the sediment, although elevated, is not considered a major risk to humans who consume fish from the Creek. For example, as noted in the risk assessment of June 2003, in the analysis for children consuming fish fillet from the Creek/Pond, the chemical which is driving the Hazard Index (HI) to be above the acceptable threshold of one is a PCB (Aroclor 1260). Additionally, PCBs are considered both a cancer risk and a non-cancer hazard, whereas mercury is considered a non-cancer hazard. Therefore, the PCBs, which are not linked to MEREKO, are the defining risk factor in the sediments.

**Potential Threats From Indoor Air Contamination:**

Regarding the indoor air risk, although the concentrations of mercury within the building are elevated, the concentrations are below the OSHA permissible exposure limit (PEL). At this point in time, any exposures to these workers are considered to be under the jurisdiction of the OSHA program. If this jurisdiction is changed, or if new information becomes available, this determination of "human exposures under control" will be re-evaluated.

## 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><u>“Contaminated” Media</u></b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>
Air (indoors)	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<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>
<del>Surface Water</del>	—	—	—	—	—	—	—
Sediment	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>
Soil (subsurface 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>
<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).

\_\_\_\_\_ 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):** Samples collected at the Mercury Refining property during the Superfund remedial investigation revealed mercury contamination in indoor air, and mercury and PCB contamination in fish tissue.

Employees of Mercury Refining, who work on site, are exposed to elevated levels of mercury in indoor air. These employees work in a building which, in the past, was used to receive and process large quantities of mercury bearing material. This activity resulted in the contamination of equipment, which is still being used in the building, and the building itself, as indicated via chip and wipe samples taken by EPA’s Emergency Response Team (ERT) in January 2005. The ERT study concluded that the contamination from the building itself would be a far greater source of indoor air exposure to workers than any risk from soil vapor seeping through the building slab, due to the high concentrations of mercury in the chip (6500 mg/kg in the chemical

room) and wipe samples, the much lower concentrations in the soil samples (0.56 mg/kg in the chemical room), and the good condition of the building slab.

Also, adults and children may be exposed to an unacceptable risk from ingesting contaminated fish from a creek which runs along the southern portion of Mercury Refining and from a downstream pond into which the creek flows. Although there appear to be complete pathways via ingestion of mercury and PCBs in fish, the Risk Assessment indicates that the major source of the contamination is PCBs, which have not been traced to this site.

<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 and Reference(s):** The Superfund risk assessment determined an unacceptable risk for employees of Mercury Refining who are exposed to mercury contaminated indoor air in a building at the Mercury Refining property, and adults and children who ingest mercury and PCB contaminated fish, which are caught from a creek and pond located near the Mercury Refining property. See Risk Assessment Report dated June 18, 2003.

Reference: RI Report dated February 28, 2003, Risk Assessment report dated, June 18, 2003, and Indoor Air Sampling Trip Reports from sampling done February 27, 2003, August 23, 2004, and January 24, 2005 (as recorded May 5, 2005)

<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):**

Although human exposures in the indoor air are elevated, the sampling done by EPA’s Environmental Response Team in January 2005, indicates that exposure to mercury contamination most likely is due to concentrations of mercury within the building that is being used than by past releases migrating to soil gas. This conclusion is based on the high concentrations of mercury in the chip (6500 mg/kg in the chemical room) and wipe samples, the much lower concentrations in the soil samples (0.56 mg/kg below the chemical room), and the good condition of the concrete slab below the building. Although the indoor air concentrations of mercury are elevated (16 ug/m<sup>3</sup>), the concentrations are below the OSHA permissible exposure limit (PEL) for mercury vapor exposure (100 ug/m<sup>3</sup>). At this point in time, any exposures to these workers are considered to be under the jurisdiction of the OSHA program. If this jurisdiction is changed, or if new information becomes available, this determination of “human exposures under control” will be re-evaluated.

Also, as noted above, the source of the PCBs in the Creek sediment (which are of a greater risk in the Creek sediment than the mercury) has not been linked to Mercury Refining. This is further reinforced by the finding of Aroclors [PCB compounds] in only one sediment sample in the pond adjacent to the site; two Aroclor compounds were found in this sample, of which one of these Aroclor compounds was not historically used at the Mercury Refining site.

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):

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 Mercury Refining facility, EPA ID # NYD048148175, located at 26 Railroad Avenue, Albany, NY 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:** \_\_\_\_\_  
Carol Stein  
RCRA Project Manager  
RCRA Programs Branch  
EPA Region 2

**Section Chief:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
—  
James Reidy  
Chief  
New York Section  
RCRA Programs Branch  
EPA Region 2

**Branch Chief:** Original signed by: \_\_\_\_\_ **Date:** September 30, 2005  
Adolph Everett  
Chief  
RCRA Programs Branch  
EPA Region 2

**Division Director:** \_\_\_\_\_ **Date:** \_\_\_\_\_  
Walter Mugdan  
Director  
Division of Environmental Planning & Protection

**Locations where references may be found:**

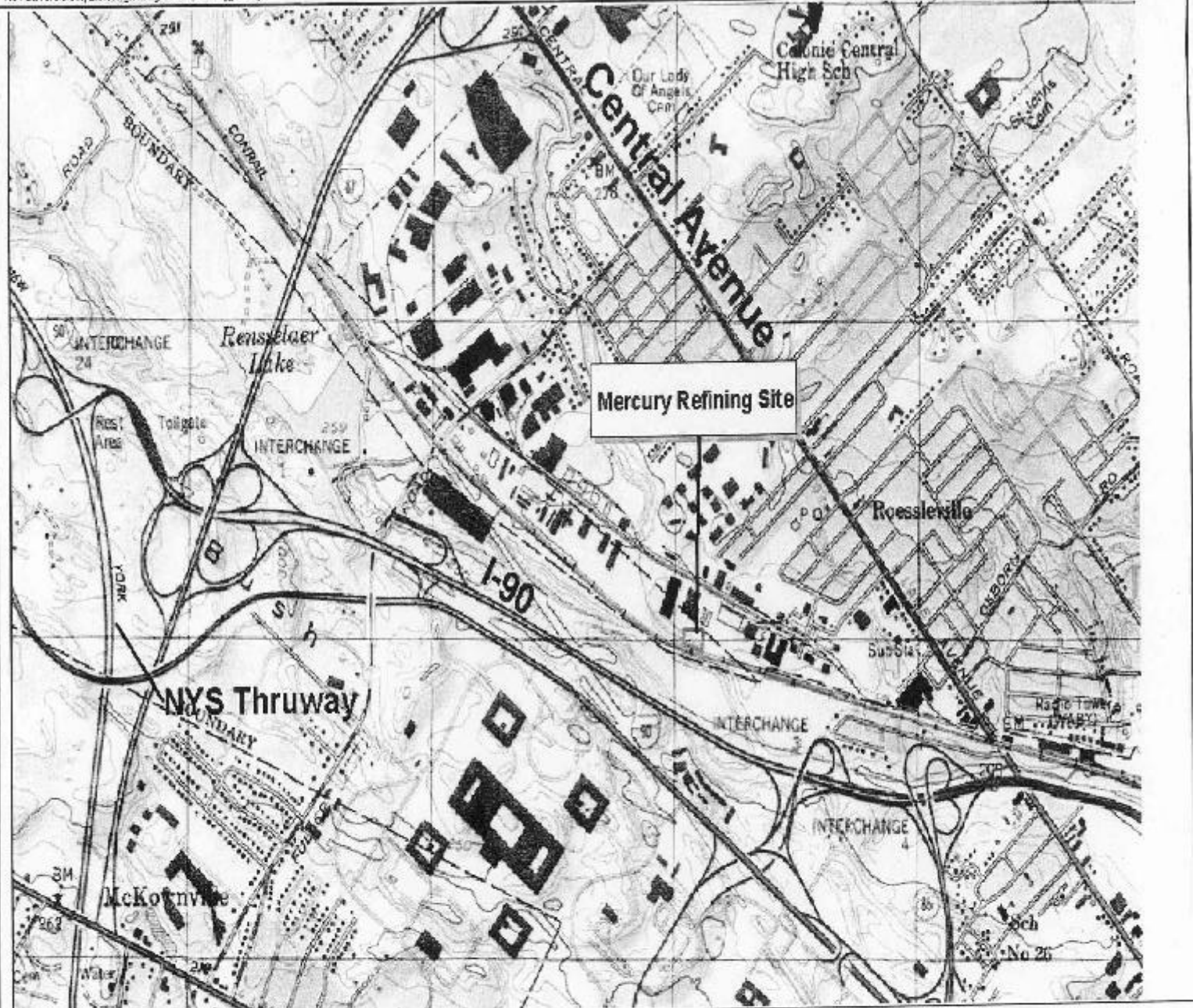
EPA Region 2 Superfund Record Center  
290 Broadway, 18th Floor  
New York, NY 10007

**Contact telephone and e-mail numbers:**

Carol Stein, P.E., RCRA Project Manager  
EPA Region 2  
(212) 637-4181  
[stein.carol@epa.gov](mailto:stein.carol@epa.gov)

Tom Taccone, Remedial Project Manager  
EPA Region 2  
(212) 637-4281  
[taccone.tom@epa.gov](mailto:taccone.tom@epa.gov)

**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.**



**LEGEND**

□ Study Area

Data Source: USGS 1:24000 scale Quadrangle



Locator Map

Figure 1-1  
Site Location  
Mercury Refining Site  
Colonie, New York



Figure 1.  
Surrounding Area

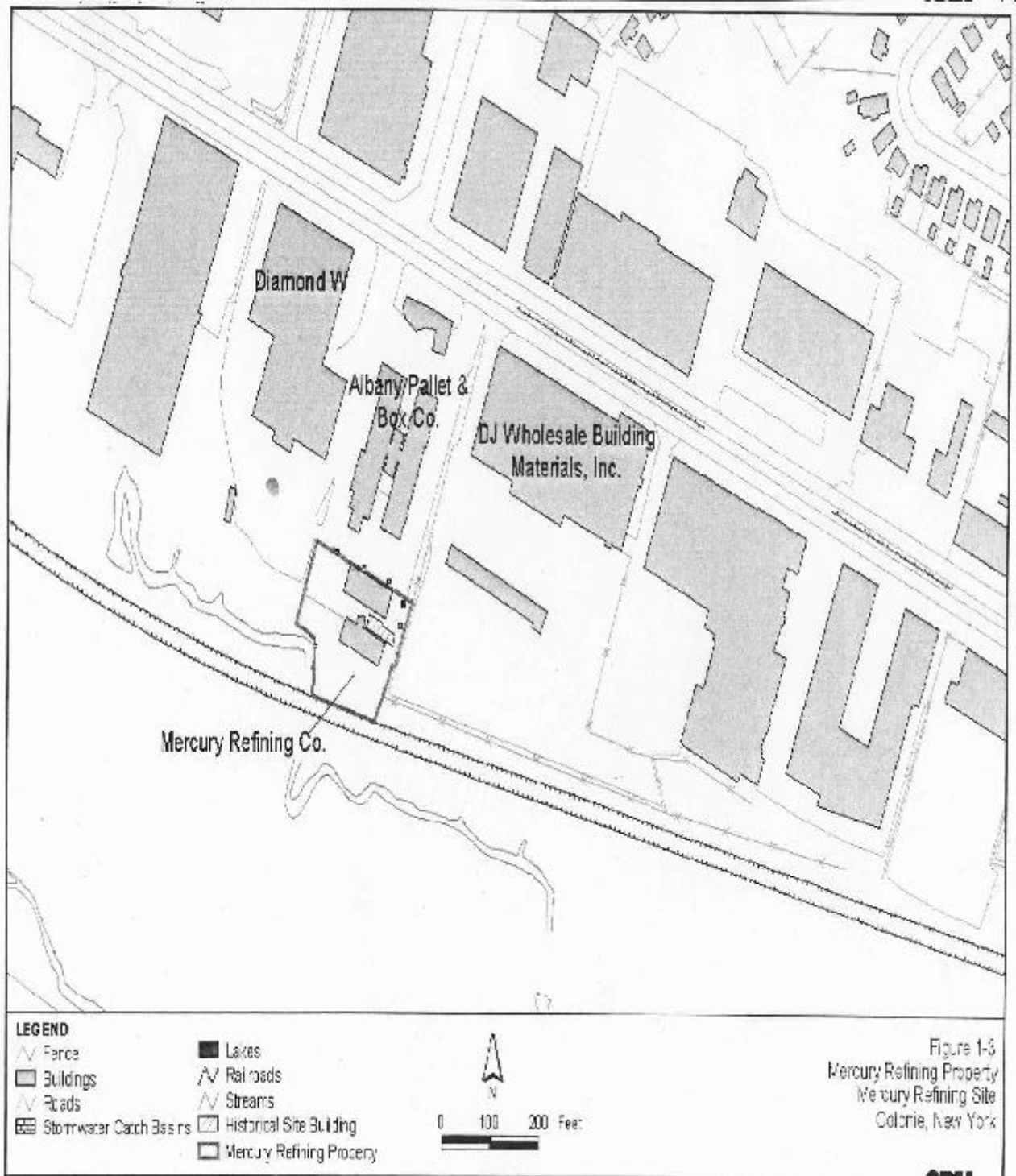


Figure 1-3  
 Mercury Refining Property  
 Mercury Refining Site  
 Colonie, New York

Figure 2. MERECO property

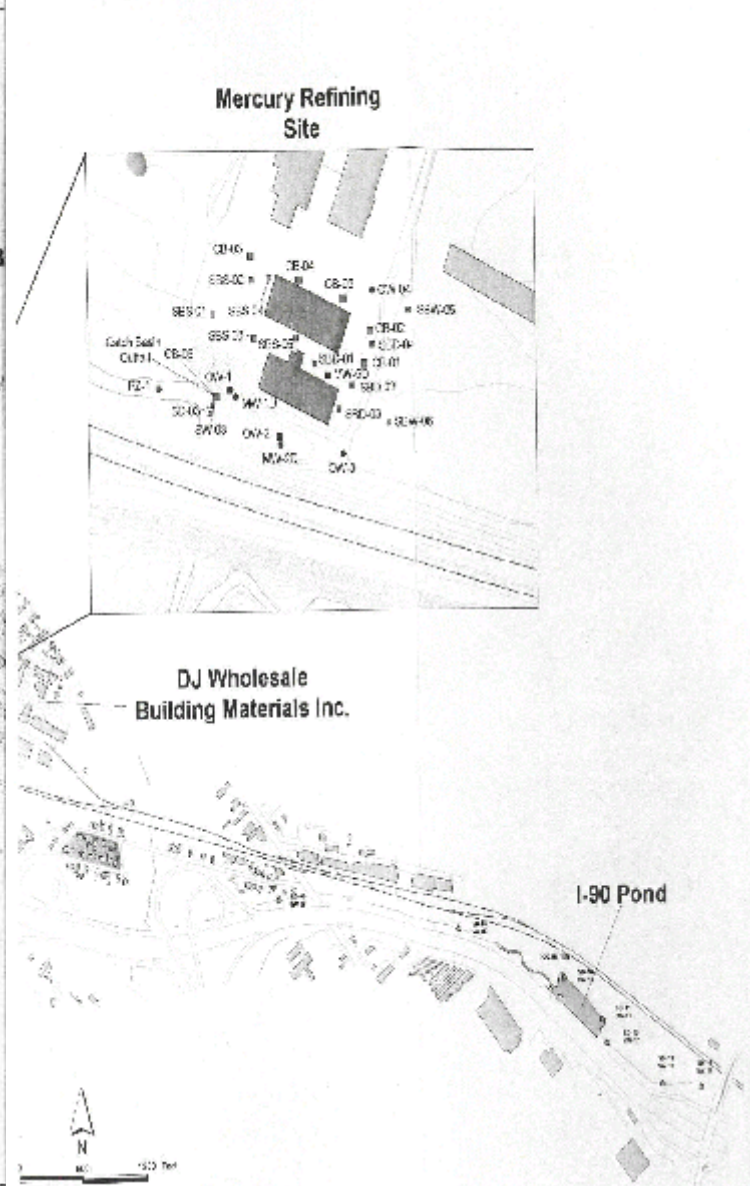
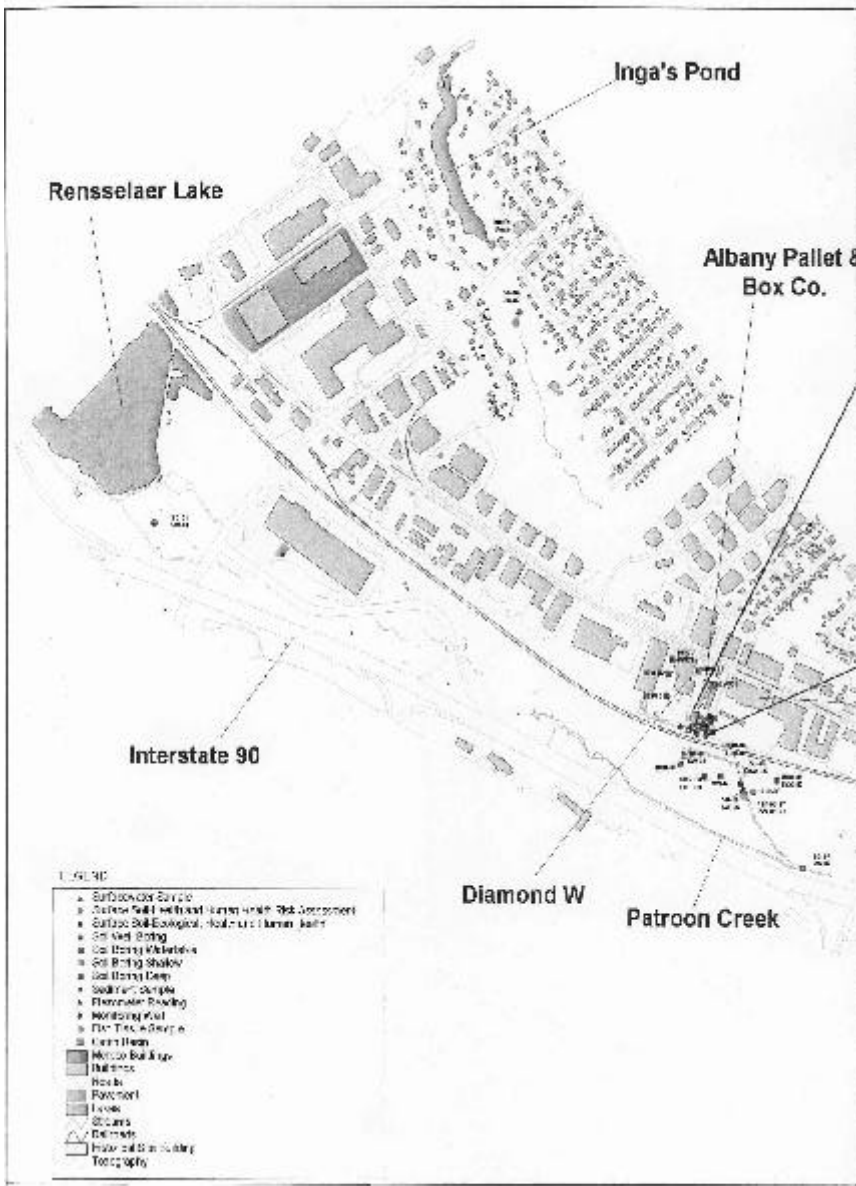


Figure 3. MERECO Property and Immediate Vicinity