

**EXECUTIVE SUMMARY
PCB INCIDENT
STATE UNIVERSITY OF NEW YORK - NEW PALTZ**

**One Hawk Drive
New Paltz, New York**

Prepared for:

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CHES Job No. EO2448547

March 4, 2010

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EXECUTIVE SUMMARY

PCB INCIDENT

STATE UNIVERSITY OF NEW YORK - NEW PALTZ

**1 Hawk Drive
New Paltz, New York**

CHES Job No. EO2021821

1.0 Overview

This Executive Summary has been prepared by Clean Harbors Environmental Services, Inc. (Clean Harbors) for The State University of New York (SUNY) at New Paltz to summarize the polychlorinated biphenyl (PCB) oil incident that occurred on December 29, 1991 and subsequent cleanup activities. This summary will describe the site location, incident description, analytical strategy and the pre-cleanup analytical results, remedial activities and post-cleanup analytical summary for the Bliss Residence Hall, Capen Residence Hall, Coykendall Science Building, Gage Residence Hall, Parker Theater, Scudder Residence Hall and all other buildings indirectly affected by the incident.

1.1 Introduction

The university is located in the Village of New Paltz in the southeast portion of Ulster County in the State of New York. Situated between Route 208 on the western property line and Route 32S on the east, the site is located approximately 0.5 miles south of Route 299. The surrounding properties are primarily residential aside from a church and social order structure along the southeast property line, across Route 32. The site is located approximately 0.5 miles due south of Main Street New Paltz and the downtown business district.

1.2 Background

On Sunday, December 29, 1991, SUNY at New Paltz was affected by an electrical power imbalance originating off the campus. The event caused damage to electrical transformers inside five campus buildings. A sixth building, Capen Hall, registered a temperature spike in one of its transformer gauges. It could not be proven that the temperature spike was not a result of the power imbalance. The six transformers, similar to most transformers manufactured before 1977, contained Arochlor 1260 PCB insulating oil. Prior to 1977, insurance companies mandated that all indoor transformers contain PCB fluids because of their fire resistive properties. In 1976, legislation was enacted prohibiting the manufacture of PCBs and placed restrictions on the use of existing PCB transformers. Other PCB materials including Arochlor

1254, 1248 and others were commonly used in waxes, caulking, sealants, fire retardants, adhesives, paints, carbonless copy paper, inks, and other products.

As a safety precaution, all transformers within buildings at the university were encased in special secured vaults. Accordingly, when the transformers were damaged, PCBs in various quantities were released predominantly within the confines of the transformer vaults. During the incident, the transformers overheated causing the pressure relief valves to open. PCBs escaped from the transformers both in vapor form, which was released to the outside via louvered doors, and in a liquid form, which pooled on the vault room floor. Smoke plumes were reportedly observed discharging from some of the vault areas. Some condensation of the vapor is believed to have occurred, resulting in exterior soil contamination. Tracking of the contamination by foot traffic during the emergency response phase of the incident is another possible explanation for the interior and exterior contamination.

1.3 Analytical Strategy

Clean Harbors developed and performed the cleanup procedures that were reviewed and approved by the following team members: Ulster County Department of Health (UCDOH), New York State Department of Health (NYSDOH), New York State Office of General Services (NYSOGS), New York State Department of Environmental Conservation (NYSDEC) and SUNY New Paltz Office for Capital Facilities. Clean Harbors is a provider of environmental emergency response, remediation and cleanup services with experience in handling a wide range of hazardous materials including oil, gasoline, chemical, PCB and biological hazards. All response personnel were trained and certified in accordance with OSHA, DOT and EPA requirements.

1.3.1 Cleanup Criteria

The United States Environmental Protection Agency (EPA) criteria for the cleanup of a PCB spill varies according to the mass of PCBs spilled and the location of the spill. For indoor surfaces, such as those found in the buildings, the criterion is 10 micrograms per 100 square centimeters (10 ug/100 cm²). For soils, the criteria is 10 parts per million (ppm) expressed as milligrams PCBs per kilogram of soil (10 mg/kg), plus excavation to a minimum depth of 10 inches and restoration with clean soil (<1.0 ppm PCBs). These criteria were also adapted by the NYSDEC. The primary focus of the NYSDEC was with exposure to the environment (i.e. exterior).

Cleanup criteria for the interior of the buildings were established by the UCDOH, in consultation with the NYSDOH. The UCDOH required that, prior to re-occupancy, all PCB levels in wipe samples must be 10 times lower than the EPA standard at 1.0 ug/100 cm².

The elevated temperatures within the transformers during the incident increased the volatility of the released PCB oil. As a result, there was an increased possibility of airborne PCB contamination. The Permissible Exposure Limit (PEL) established by the Occupational Health and Safety Administration (OSHA) for occupational exposure is 500 micrograms per cubic meter (500 ug/m³). The potential exposure of students in dormitories to PCBs was not considered an occupational exposure. As such, the NYSDOH established a re-occupancy criteria for PCB air concentrations of less than 1.0 ug/m³, which was 500 times lower than the OSHA PEL.

Since PCB transformer fluids can form dioxins and furans when heated to high temperatures, the NYSDOH suggested a dioxin/furan wipe sample re-occupancy criteria of 25 nanograms of 2,3,7,8- Tetrachlorodibenzodioxin (TCDD) toxicity equivalents per square meter (25 ng/m²).

A summary of the response cleanup criteria is:

Sample Type	Location	Sample Media	Criteria	Agency
PCBs	Indoor Surfaces	wipe	10 ug/100 cm ²	EPA/DEC
	Indoor Surfaces	wipe	1.0 ug/100 cm ²	UCDOH
	Indoor Air	air	500 ug/m ³	OSHA
	Indoor Air	air	1.0 ug/m ³	NYSDOH
	Soil	soil	10 mg/kg	EPA/DEC
Dioxins	Indoor Surfaces	wipe	25 ng/m ²	NYSDOH

1.3.2 Wipe Sampling

PCB wipe samples were taken randomly in the immediate period after the incident to determine the boundaries of the spill and the magnitude of contamination throughout the buildings. These samples were taken on various surfaces. The re-occupancy criteria necessitated a minimum detection limit of 0.1 ug/100 cm². Samples were taken on horizontal and other high-contact surfaces where available.

Dioxin/furan wipe samples were taken in several locations adjacent to the transformer vaults. Post-cleanup dioxin/furan wipe sampling was taken in any area exhibiting dioxin/furan presence in excess of the NYSDOH re-occupancy criteria of 25 ng/m² prior to remediation.

The post-cleanup sampling protocol was reviewed and approved by the UCDOH. Post-cleanup PCB wipe sampling was conducted in all areas that were cleaned. Post-cleanup sampling was not conducted in areas that tested below the established UCDOH re-occupancy criteria prior to cleaning. Over the duration of the cleanup, approximately 10,000 wipe samples were collected for laboratory analysis at Clean Harbors' State certified analytical laboratory at Braintree, Massachusetts.

In order to verify the integrity of the sample results, for 10% of the samples, a second sample was taken from an adjacent sampling location and sent for analysis to the NYSDOH laboratory in Albany, New York. Field blanks were obtained throughout the sampling process and analyzed for PCB content at Clean Harbors and NYSDOH laboratories. The blank analysis procedure was conducted to further verify sample result integrity.

1.3.3 Air Sampling

During the initial phase of the cleanup, PCB air samples were taken immediately outside the vault areas to determine the extent of airborne PCB contamination. Prior to re-occupancy, PCB air samples were taken outside the elevator on each floor to verify that the NYSDOH re-occupancy criterion of 1.0 ug/m³ was satisfied. PCB air samples were taken inside the vaults, in areas adjacent to the vaults, and directly above the vaults. The PCB air samples were taken

in clean areas throughout the remediation process to verify that PCB contamination had not penetrated the isolation measures and spread beyond the contamination zone. Several hundred air samples were collected over the entire project.

1.3.4 Soil Sampling

Outside Soils: In order to delineate any contamination in the immediate surrounding areas of the transformer vaults, grid sampling was conducted according to procedures outlined in the EPA “Field Manual for Grid Sampling of PCB Spill Site to Verify Cleanup”.

Initially, a grid was established to characterize the soil surface immediately outside the transformer vaults. Sampling locations were staggered to assure a thorough and representative depiction of the contamination around the vault exterior.

Once the boundaries of the affected area outside the vaults had been set following standard EPA protocol, remedial measures were undertaken. Upon completion of each phase of remedial action, a verification grid was re-established and sampling conducted. This process was continued until applicable cleanup standards were achieved and verified by sample results.

Interior Soils: As remedial activities in the vault areas progressed, it was determined from analytical results of wipe sampling that the vault surfaces required limited surface removal. When wipe sample results showed PCB penetration through the slab, extensive demolition (i.e. floor removal, etc.) was performed. Due to the concentrations of PCBs in the concrete floors, it was decided that soils beneath the concrete slab would also require grid sampling. As analytical results warranted, the same grid sampling/soil removal/verification procedure was followed as outlined above for the outside soils. In an effort to evaluate the vertical extent of subsurface contamination below the concrete floor in the transformer vaults and surrounding internal areas (i.e. corridors and electrical rooms), soil borings were advanced and samples were analyzed for PCB content. The results of the samples assisted in determining the excavation depth.

The standard EPA grid sampling protocol was again initiated in the vaults. A grid was established and the samples were taken and analyzed for PCB content. As remedial activity progressed (i.e. excavation depth progressed), the initial grid was re-established and samples taken. As results indicated PCB concentrations below the EPA cleanup criteria, the size of the grid decreased until all sections of the excavation were below the criteria.

1.4 Porous and Non-Porous Surfaces

EPA’s standard operating procedures while conducting cleanup of PCB releases use guidelines that include determining whether impacted materials are porous or non-porous. Because porous materials are difficult to clean and sample, porous materials (structurally non-essential items such as carpet, clothing, ceiling tiles, etc.) are generally disposed of without any attempt to clean, while non-porous surfaces are cleaned and wipe sampled.

The non-porous surfaces were treated by three different methods depending on the PCB concentrations present. For the least-affected areas, an industrial cleaning consisted of using a water-based solution of Trisodium Phosphate and commercially available detergent and wet

mopping the visibly clean areas or scrubbing the visually dirty areas until they appeared clean. For moderately affected areas, double-wash/double-rinse cleaning consisted of two Trisodium Phosphate and detergent cleanings with each followed by a clean-water rinse. And for the heaviest-affected areas, a double-wash/double-rinse cleaning consisted of two cleanings using specialized PCB removal solutions (Capsur or Pentone), with each followed by a clean-water rinse.

The porous surfaces were also treated by three different methods depending on the PCB concentrations present. For the least-affected areas, two cleanings were performed using Capsur or Pentone with each followed by a clean-water rinse. For the moderate or more heavily affected areas, either a limited surface removal was performed to remove the impact surface, or multiple coatings of epoxy paint were applied to encapsulate the impacted surface.

2.0 Bliss Residence Hall

2.1 Pre-Cleanup Analytical Results

2.1.1 PCB Wipes

Wipe samples were collected from the interior of the building prior to cleaning. The PCB wipe sample concentrations ranged from below the minimum detection limit of 0.1 ug/100 cm² to 350 ug/100 cm². Areas above the re-occupancy criteria included the basement locker room, laundry room, mechanical room and hallway, the first-floor hallway, kitchen and lounge, the second-floor hallway, janitor's closet, portions of the exhaust system, vault, electrical room elevator, elevator room and third-floor hallway.

Additional PCB wipe samples were also collected from the outside of the building and from other surfaces near the vault (i.e. wall, dumpster, louver, asphalt) and the building's exhaust system that tested above the re-occupancy criteria. The concentrations in these samples ranged from 0.1 to 190 ug/100 cm².

2.1.2 Dioxin/Furan Wipes

Dioxin/Furan wipe samples were collected from the building prior to cleaning. All analytical results from the basement, first, second and third-floors were below the re-occupancy criteria, with the exception of one sample just outside the electrical room in the basement (370 ng/m²).

2.1.3 PCB Air Samples

All PCB air samples were below the NYSDOH established criteria of 1.0 ug/m³.

2.1.4 Soil Samples

Soil samples were taken from five different boring locations in the transformer vault. The samples were taken at one-foot intervals from one to six feet below grade. Analytical results from the samples ranged from non-detectable to 9,900 mg/kg.

Soil samples were also taken from 12 different boring locations around the transformer vault perimeter. The samples were taken at one-foot intervals from one to six feet below grade. Ten samples were submitted for PCB analysis, and some of the results were above the EPA cleanup criteria and ranged from non-detectable to 460 mg/kg.

2.2 Remedial Activities

2.2.1 Initial Short-Term Measures

The remaining oil was pumped from the transformer, the transformer carcass was then triple flushed with diesel fuel per EPA guidelines and shipped off site for disposal at an approved facility.

The vault, electric room, elevator room and elevator were temporarily sealed off using plywood, caulking and a polyethylene barrier.

Outside areas where the potential for spilled material existed were covered with polyethylene sheeting to prevent rain or other surface water from driving any contamination further into the soil.

2.2.2 Cleaning Procedures

Based on the pre-cleanup test results and building geometry, remedial activities were divided into five separate sections; the north and south wings, the primary vault, the exhaust systems, the elevator shaft and car, and the external areas. During the cleaning process, access was restricted to impacted areas to eliminate the potential for contamination of clean rooms.

North and South Wings: PCB pre-cleanup wipe sample results for most rooms in the basement were below the minimum detection limit of 0.1 ug/100 cm², except for the hallway, the locker room, the mechanical room and the laundry room. On the first and second-floors, concentrations were detected only in the hallways, kitchen and lounge adjacent to the elevator and janitor's closet on the second-floor. On the third-floors, concentrations were detected only in the hallways.

Therefore, all of the remaining rooms were sealed with polyethylene sheeting to avoid cross-contamination during cleaning activities. The areas requiring remediation and all public areas (hallways and lobby) were subject to a double-wash/double-rinse cleaning followed by an industrial wash. Prior to cleaning, all porous materials were removed and disposed of.

Primary Vault Area: The primary vault area consisted of the vault room, the electric room, the recycling room, the locker room, the elevator room, the storage room and the hallway connecting these rooms. All surfaces sampled within the vault area initially indicated concentrations above the re-occupancy criteria. In an effort to remove the gross contamination, these surfaces were cleaned using the double-wash/double-rinse procedure. Subsequent cleanings and limited surface removal of these surfaces still indicated levels above the re-occupancy criteria such that the vault and electric room floor and common walls between the vault room and electric room were demolished, removed and shipped off site for disposal. The only area remaining above the re-occupancy criteria was the vault, which was encapsulated.

Exhaust System: All vents within Bliss Hall are exhaust systems whose main function is to vent the bathrooms and janitor's closets. Vent systems were cleaned using a Penetone S2389 solution. All systems were cleaned to levels below the re-occupancy criteria except the north wing bathroom duct system and central duct system, which were demolished, removed and shipped off site for disposal, and replaced.

Elevator: The elevator shaft was given a double-wash/double-rinse at each building level. The elevator car roof was also given a double-wash/double-rinse, but post-cleanup results failed to meet the re-occupancy criteria. Subsequent Penetone S2389 and solvent washes of these areas were performed and the post-cleanup sample results met the re-occupancy criteria.

2.2.3 Excavation

Outside Excavation: Because low levels of PCBs were detected in wipe samples collected outside of the vault, exterior areas adjacent to the transformer vault were excavated and grid sampled until the EPA cleanup criteria were attained. In accordance with EPA criteria, the 10 mg/kg guideline was utilized because a minimum of one-foot of soil was excavated prior to sampling and was replaced with clean soil.

Vault Excavation: After removing the transformer and cleaning the vault, the concrete floor was demolished and removed. The underlying soils were removed to a depth of eight feet. Under direction of the New York State Office of General Services (NYSOGS), soil removal was ceased to preserve the structural integrity of the building footings. All of the soil samples in the four sampling quadrants were below the EPA cleanup criteria, except for the northwest quadrant. Two additional soil samples were then collected from borings at a depth of nine feet. The results were below the cleanup criteria.

2.2.4 Encapsulation

Repeated efforts at cleaning the vault were unsuccessful, despite using different cleaning solutions. As a result, during a meeting on August 7, 1992 with representatives from the EPA, the NYSDEC, and the UCDOH, it was agreed that all concrete surfaces exhibiting levels of PCB contamination above the UCDOH criteria of 1.0 ug/100 cm² would be encapsulated. Information regarding the encapsulant was forwarded to all parties for their review and comment. After the encapsulation, the encapsulated area is periodically inspected and wipe sampled.

2.2.5 Post-Cleanup Analytical Summary

North and South Wings: Remediation efforts in the north and south wings of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Primary Vault: As previously described, all surfaces within the primary vault were scarified, the floor slab was removed, and excavation was advanced to a depth of up to eight feet below grade. It was determined by NYSOGS engineers that further excavation might compromise the structural integrity of the building. Remaining contamination on the walls and ceiling has been encapsulated. The excavation has been lined with polyethylene and capped with one foot of concrete. The concrete cap has been encapsulated as well. The encapsulated area is periodically inspected and wipe sampled. If wipe samples produce results in excess of the established criteria, or damage is observed, a secondary encapsulant is applied to the contaminated area and it is re-sampled to ensure it meets the re-occupancy criteria.

Exhaust System: No post-cleanup PCB wipe samples for intact sections were above the cleanup criteria.

Elevator: No post-cleanup wipe sample results from the elevator car interior and exterior, and the elevator shaft were above the PCB re-occupancy criteria.

Outside Excavation: As previously described, remediation efforts were successful; no samples were above the PCB cleanup criteria for the external excavation.

Dioxin/Furan Wipe Samples: No post-cleanup dioxin/furan wipe sample results were above the re-occupancy criteria.

2.2.6 Re-Occupancy Date

In consultation with the NYSDOH and after review of the analytical data and cleanup activities, the UCDOH recommended Bliss Hall be reopened for general admission on August 20th, 1993 with the exception of the transformer vault room. Any remaining contamination within this isolated and locked room is encapsulated and periodically tested/inspected.

3.0 Capen Residence Hall

3.1 Pre-Cleanup Analytical Results

As previously mentioned, Capen Hall, registered a temperature spike in one of its transformer gauges, however, it could not be proven that the temperature spike was not a result of the power imbalance.

3.1.1 PCB Wipes

The initial samples collected from the basement, first-floor, second-floor and third-floor were below the re-occupancy criteria, with the exception of the following samples: The highest PCB wipe sample concentration was detected in the transformer vault (830 ug/100 cm²). Other areas testing above the 1.0 ug/100 cm² re-occupancy criteria were the floor in room B-2 (31 ug/100 cm²), top of hallway light (2.2 ug/100 cm²), door sill outside of vault (1.4 ug/100 cm²), two samples from the storage room (1.9 & 22.0 ug/100 cm²) and sinks in the women's and men's rooms (1.2 & 2.2 ug/100 cm²).

3.1.2 Dioxin/Furan Wipes

All dioxin/furan wipe sample results were below the NYSDOH re-occupancy criteria.

3.1.3 PCB Air Samples

PCB air samples were collected, the results of which were all below the established criteria of 1.0 ug/m³.

3.1.4 Soil Samples

Because the concrete or impacted surfaces were cleaned to acceptable levels, soil sampling was not warranted.

3.2 Remedial Activities

3.2.1 Initial Short-Term Measures

The remaining oil was pumped from the transformer, the transformer carcass was then triple flushed with diesel fuel per EPA guidelines and shipped off site for disposal at an approved facility.

3.2.2 Cleaning Procedures

Based on the pre-cleanup test results and building geometry, remedial activities were divided into two separate sections; the vault and the remainder of the basement. There was no evidence of impact to any areas on the first, second or third-floor, and the low level present in the basement (except transformer room) were likely a result of tracking by the initial responders. During the cleaning process, access was restricted to the impacted areas within the building to eliminate the potential for contamination of clean rooms.

Basement: PCB pre-cleanup wipe sample results for all rooms in the basement were below the minimum detection limit of 0.1 ug/100 cm² except for the floor in room B-2, storage room, and women's and men's rooms. Therefore, all of the remaining rooms were sealed with polyethylene sheeting to avoid cross-contamination during cleaning activities. Other areas testing above the 1.0 ug/100 cm² re-occupancy criteria were a hallway light and door sill outside of the vault. These areas requiring remediation, and all public areas (hallways and lobby) were subject to a double-wash/double-rinse cleaning followed by an industrial wash on all horizontal surfaces. Prior to cleaning, all porous materials except carpets were removed and disposed of. Although the carpets tested below the re-occupancy criteria, they were industrially cleaned with detergent and water as a precautionary measure and have since been removed under normal periodic building upgrades.

3.2.3 Encapsulation

No encapsulation was needed.

3.2.4 Post-Cleanup Analytical Summary

Basement: Remediation efforts in the basement of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Vault: Remediation efforts in the vault were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Remainder of Building: Remediation efforts in the remainder of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

3.2.5 Re-Occupancy Date

In consultation with the NYSDOH and after review of the analytical data and cleanup activities, the UCDOH recommended Capen Hall be reopened for general occupancy on February 4th, 1992.

4.0 Coykendall Science Building

4.1 Pre-Cleanup Analytical Results

4.1.1 PCB Wipes

After the initial sampling, the highest PCB level was found near the transformer, outside the transformer room, at a concentration of 3,200 ug/100 cm²; samples from other basement rooms revealed PCB levels ranging from 16 to 2,300 ug/100 cm². Samples from four rooms on the first-floor had PCB levels ranging from 4.5 to 34 ug/100 cm². On the second-floor, two wipes showed levels of 32 and 50 ug/100 cm². Samples from the third-floor had increasingly lower levels ranging from 1.9 to 12 ug/100 cm².

4.1.2 Dioxin/Furan Wipes

All dioxin/furan wipe sample results were below the NYSDOH re-occupancy criteria.

4.1.3 PCB Air Samples

PCB air samples were collected and all of the results were below the established re-occupancy criteria of 1.0 ug/m³ except four samples (ranging from 1.1 to 3.9 ug/m³) on the basement level.

4.1.4 Soil Samples

Soil samples were taken from 10 different boring locations in and around the transformer vault. The samples were taken at one-foot intervals at depths ranging from one to six feet. Analytical results from the samples ranged from non-detectable to 1,000 mg/kg.

4.2 Remedial Activities

4.2.1 Initial Short-Term Measures

The remaining oil was pumped from the transformer, the transformer carcass was then triple flushed with diesel fuel per EPA guidelines and shipped off site for disposal at an approved facility.

The vault, electric room, elevator room and elevator were temporarily sealed off using plywood, caulking and a polyethylene barrier.

4.2.2 Cleaning Procedures

Rooms and areas were divided into three categories based on analytical results obtained from PCB wipe samples. These categories were as follows: Category 1 - rooms and areas which were below the UCDOH re-occupancy criteria of 1.0 ug/100 cm², Category 2 - rooms and areas with concentrations between the UCDOH re-occupancy criteria of 1.0 ug/100 cm² and EPA's cleanup criteria of 10 ug/100 cm², and Category 3 - rooms and areas with concentrations above EPA's cleanup criteria of 10 ug/100 cm². Category 1 areas were sealed

off using plywood, caulking and a polyethylene barrier to prevent the spread of contamination into these areas. Category 2 areas were industrial cleaned. Category 3 areas were double-washed/double-rinsed.

Based on the pre-cleanup test results, all of the ventilation and exhaust duct systems above the NYSDOH re-occupancy criteria of 1.0 ug/100 cm² were removed and disposed of.

4.2.3 Excavation

As part of the vault demolition, soil was excavated to depths of up to 10.5 feet. The vault was sub-divided into 19 sections and an EPA sampling grid was established. Results of the samples revealed concentrations both below and in excess of the cleanup criteria of 10 mg/kg. Under direction of the New York State Office of General Services (NYSOGS), soil removal was ceased to preserve the structural integrity of the building footings. As such, two feet of Bentonite followed by 30 mil polyethylene, fill material and a new concrete slab were used to cap the vault excavation.

4.2.4 Encapsulation

Repeated efforts at cleaning the vault were unsuccessful, despite using different cleaning solutions. As a result, during a meeting on August 7th, 1992 with representatives from the EPA, the NYSDEC, and the UCDOH, it was agreed that all concrete surfaces exhibiting levels of PCB contamination above the UCDOH criteria of 1.0 ug/100 cm² would be encapsulated. Information regarding the encapsulant was forwarded to all parties for their review and comment. After the encapsulation, the encapsulated area is periodically inspected and wipe sampled.

4.2.5 Post-Cleanup Analytical Summary

Basement: Except for the transformer vault, remediation efforts in the basement of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Vault: Because analytical results from the vault were above the EPA cleanup criteria, the area was encapsulated and the room remains isolated. The encapsulated area is periodically inspected and wipe sampled. If wipe samples produce results in excess of the established criteria, or damage is observed, a secondary encapsulant is applied to the contaminated area and it is re-sampled to ensure it meets the re-occupancy criteria.

Remainder of Building: Remediation efforts in the remainder of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

PCB Air Samples: No post-cleanup PCB air sample results were above the re-occupancy criteria.

4.2.6 Re-Occupancy Date

In consultation with the NYSDOH and after review of the analytical data and cleanup activities, the UCDOH recommended Coykendall Science Building be reopened for general use on May 23rd, 1995 with the exception of the transformer vault room. Any remaining contamination within this isolated and locked room is encapsulated and periodically tested/inspected.

5.0 Gage Residence Hall

5.1 Pre-Cleanup Analytical Results

5.1.1 PCB Wipes

The highest PCB wipe sample concentrations were detected in the basement areas adjacent to the transformer vault. Among the areas testing above the 1.0 ug/100 cm² re-occupancy criteria were the hallway outside the transformer room (59 ug/100 cm²), the bricks within the vault (27 and 55 ug/100 cm²), the recreation room (1.1 ug/100 cm²), the door strip near the storage room (8.8 ug/100 cm²), the bathroom (3.6 ug/100 cm²), the elevator shaft at the second floor (2.2 ug/100 cm²), the elevator car roof (26 ug/100 cm²), the elevator car interior (1.1 to 2.6 ug/100 cm²), and the janitor's closet (1.4 ug/100 cm²).

In addition, several PCB wipe sample results from the electrical room were above the re-occupancy criteria, the highest results coming from inside the switch and fuse boxes. The elevator car wipe sample results exceeded the re-occupancy criteria, both on the exterior (26 ug/100 cm²) and the interior (2.6 ug/100 cm²). The elevator shaft wipe sample results also exceeded the re-occupancy criteria on the first and second-floors.

All other analytical results from the first, second and third-floors were below the re-occupancy criteria, with the exception of the phone booth across from student room 321 (1.2 ug/100 cm²), and a third-floor fire extinguisher (5.1 ug/100 cm²). Based on the preceding result, the phone booth was cleaned and re-sampled and all of the fire extinguishers were removed from the floor and disposed of at an approved facility.

5.1.2 Dioxin/Furan Wipes

All dioxin/furan wipe sample results were below the NYSDOH re-occupancy criteria.

5.1.3 PCB Air Samples

All PCB air sample results were below the established criteria of 1.0 ug/m³.

5.1.4 Soil Samples

Interior soil samples were taken from six different boring locations advanced inside the building, at locations outside and adjacent to the transformer vault, in July 1992. The samples were taken at depths of approximately one, two and three feet below grade. Analytical results from all samples were below the EPA criteria of 10 mg/kg.

Upon completion of the vault demolition, soil beneath the vault floor was excavated to a depth of 1½ feet. The vault footprint was sub-divided into four sections and an EPA sampling grid was established, comprised of two-foot-by-two-foot grids. Results of three of the samples exceeded the cleanup criteria of 10 mg/kg. The excavation was extended to a depth of 2 ½ feet and additional soil samples were then taken. Analytical results of these samples indicated that two of the samples, taken in the southwest corner of the vault, remained above the cleanup criteria. The excavation was then advanced to a depth of approximately 3 ½ feet

below the grade and an EPA sampling grid was established. All results were below the established cleanup criteria.

As discussed in Section 5.2.3, excavation was also performed outside the building adjacent to the transformer vault. The area was sub-divided into twelve sections, comprised of several two-foot-by-two-foot grids.

Initial grid samples were taken one foot below grade and the results indicated that, with the exception of section #5, all portions of the excavation were below the EPA cleanup criteria. Section #5 of the excavation was advanced to two feet below grade. Grid samples were taken and analytical results indicated that the PCB cleanup criteria were met.

5.2 Remedial Activities

5.2.1 Initial Short-Term Measures

The remaining oil was pumped from the transformer. The transformer carcass was then triple flushed with diesel fuel per EPA guidelines and shipped off site for disposal at an approved facility.

Outside areas where the potential for spilled material existed were covered with polyethylene sheeting to prevent rain or other surface water from driving any contamination further into soil or carrying it to otherwise unaffected areas.

Cleaning activities in all student rooms and public access areas, with the exception of the elevator car and recreation room, were completed prior to the beginning of the Spring Semester of 1992. The remaining contaminated areas (elevator car, vault and recreation room) were temporarily sealed off using plywood, caulking and a polyethylene barrier. Upon receipt of the analytical results, the UCDOH approved opening the building for use, with the previously mentioned exceptions. By August 1992, cleaning in the elevator car, vault and recreation room were completed.

5.2.2 Cleaning Procedures

Based on the pre-cleanup test results and building geometry, remedial activities were divided into five separate sections; the basement, the primary vault, the remainder of the building, the elevator and outside areas. During the cleaning process, access was restricted to impacted areas to eliminate the potential for spreading of the contamination.

Basement: PCB pre-cleanup wipe sample results for all student rooms in the basement were below the minimum detection limit of 0.1 ug/100 cm². Therefore, these rooms were sealed with polyethylene sheeting to avoid cross-contamination during cleaning activities. Areas requiring remediation were subject to a double-wash/double-rinse cleaning followed by an industrial wash. After all public access areas were remediated to the UCDOH criteria, rugs from the student rooms were removed and disposed of at an approved facility. Prior to re-occupancy, the floors in the student rooms were cleaned with an industrial wash as a precautionary measure.

Remainder of the Building: As previously mentioned, all fire extinguishers on the third-floor were removed and disposed of at an approved facility. Extinguishers on the remaining floors were also removed as a precautionary measure. Replacement extinguishers were provided for all levels. The phone booth across from student room 321 was isolated and cleaned using a double-wash/double-rinse. All public access areas on the first, second and third levels (including rec room) were subject to an industrial wash.

Elevator: The following areas were initially cleaned using an industrial wash: the roof of the elevator shaft, the ceiling of the elevator car, the steel framework within the shaft, the conduits, the bottom of the elevator car, the elevator shaft walls, and the elevator pit. Post-cleanup wipe sample results indicated that all areas satisfied the re-occupancy criteria, with the exception of the elevator car roof. The roof was successfully re-cleaned with a solvent, followed by an industrial wash. A paint stripping solvent was applied to the doors in the electrical room and the elevator. Following this step, the doors were subjected to a double-wash/double-rinse cleaning. The interior of the elevator car was also given a double-wash/double-rinse cleaning. Post-cleanup PCB wipe sample results from the shaft, the car and the car roof met the re-occupancy criteria.

5.2.3 Excavation

Outside Excavation: Because low levels of PCBs were detected in wipe samples collected outside of the vault, exterior areas adjacent to the transformer vault were excavated and grid sampled until the cleanup criteria was attained. In accordance with EPA criteria, the 10 mg/kg guideline was utilized because a minimum of one foot of soil was excavated prior to sampling, and was replaced with clean soil.

Electrical Room: All electrical switchgear and conduit were removed from the electrical room and disposed of at an approved facility. Electrical panel covers were removed, cleaned, and replaced. Wipe sample results from the walls and floor of the electrical room failed to meet the re-occupancy criteria and were washed with Penetone S2389.

When the PCB contamination on the floor continued to exceed the re-occupancy criteria (41 ug/100 cm²), a 1/8-inch layer was removed from the floor surface, followed by a cleaning with high pressure steam and solvent solution. When this procedure was unsuccessful in meeting the re-occupancy criteria, the floor slab was demolished and removed for disposal at an approved facility.

Vault Room: Following the double-wash/double-rinse cleaning, all surfaces within the vault room received a Penetone S2389 wash. At the completion of this process, the analytical results of samples taken of these surfaces remained above the re-occupancy criteria, requiring a second Penetone S2389 wash. The second Penetone S2389 wash was successful on the vault ceiling, but not so on the walls and floor. When a subsequent cleaning with a solvent was also unsuccessful, the floors and walls were demolished.

5.2.4 Encapsulation

Repeated efforts at cleaning the inside and outside surfaces of the south grade beam in the vault were unsuccessful, despite using different cleaning solutions. As a result, during a

meeting on August 7, 1992 with representatives from the EPA, the NYSDEC, and the UCDOH, it was agreed that all concrete surfaces exhibiting levels of PCB contamination above the UCDOH criteria of 1.0 ug/100 cm² would be encapsulated. Information regarding the encapsulant was forwarded to all parties for their review and comment. After the encapsulation, the encapsulated area is periodically inspected and wipe sampled.

5.2.5 Post-Cleanup Analytical Summary

Basement: Remediation efforts in the basement of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Remainder of Building: Remediation efforts in the remainder of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Outside Excavation: As previously described, remediation efforts outside of the building were successful; no post-cleanup sample results were above the EPA cleanup criteria.

Primary Vault: As previously described, all the walls within the primary vault were removed and the vault was excavated to a depth of approximately 3 ½ feet below grade. No analytical results from the excavation were above the EPA cleanup criteria. The remaining contamination on the beams was encapsulated. The excavation was lined with polyethylene and capped with one foot of concrete. The encapsulated area is periodically inspected and wipe sampled. If wipe samples produce results in excess of the established criteria, or damage is observed, a secondary encapsulant is applied to the contaminated area and it is re-sampled to ensure it meets the re-occupancy criteria.

Elevator: Remediation efforts in the elevator shaft were successful; no post-cleanup sample results from the elevator shaft and elevator car interior and exterior were above the PCB re-occupancy criteria.

5.2.6 Re-Occupancy Date

In consultation with the NYSDOH and after review of the analytical data and cleanup activities, the UCDOH recommended Gage Hall be reopened for general use on August 21st, 1992 with the exception of the transformer vault room. Any remaining contamination within this isolated and locked room is encapsulated and periodically tested/inspected.

6.0 Parker Theater

6.1 Pre-Cleanup Analytical Results

6.1.1 PCB Wipes

The highest PCB wipe sample concentrations were detected in the area of the transformer vault, the loading dock, and the electrical room. A sample result of 520 ug/100 cm² was detected on the vault floor, up to 1,800 ug/100 cm² in the electrical room and up to 5,900 ug/100 cm² on the loading dock. In addition, several rooms tested above the 1.0 ug/100 cm² re-occupancy criteria. The first-floor sample results indicated levels above the re-occupancy criteria in room 110 (13 ug/100 cm²), the hallway outside room 111A (49 ug/100 cm²), room 112 (7.7 ug/100 cm²), room 113 (13 ug/100 cm²), room 114 (3.1 ug/100 cm²) room 107 (5.4 ug/100 cm²), room 109 (5.8 ug/100 cm²), the hallway between rooms 120, 127 and 114 (3.9 ug/100 cm²), and room 123 (2.5 ug/100 cm²). With the exception of room 206 (1.2 ug/100 cm²), all PCB wipe sample results from the second-floor were below the re-occupancy criteria. All other first and second-floor rooms and areas tested below the re-occupancy criteria. The roof sample results indicated levels above the re-occupancy criteria directly above the transformer vault (33 ug/100 cm²). Five of the seven ventilation systems indicated levels above the re-occupancy criteria (1.6 to 130 ug/100 cm²).

6.1.2 Dioxin/Furan Wipes

All dioxin/furan wipe sample results were below the NYSDOH re-occupancy criteria.

6.1.3 PCB Air Samples

All PCB air sample results were below the established criteria of 1.0 ug/m³.

6.1.4 Soil Samples

Upon completion of initial soil removal, post-excavation grid sampling was conducted in the transformer vault and driveway. To evaluate potential subsurface PCB migration, excavation and boring soil sampling were performed concurrently at the loading dock and at the transformer vault perimeter. These samples were taken in conjunction with the post-excavation grid sampling. To profile the vertical extent of contamination during excavation activities, samplers were driven and samples were collected at one-foot intervals. For samples indicating that the bottom of the excavation did not meet the cleanup criteria, the excavation was advanced another foot and additional samples were taken until acceptable levels were attained or until soil removal was no longer feasible.

6.2 Remedial Activities

6.2.1 Initial Short-Term Measures

The remaining oil was pumped from the transformer, the transformer carcass was then triple flushed with diesel fuel per EPA guidelines and shipped off site for disposal at an approved facility.

In January 1992, during the remediation effort, the temperature in the Parker Theater dropped due to the heating system being inoperable. Piping for the water, heating and sprinkler systems ruptured, resulting in a release of water. The water was collected, drummed, and shipped off site for disposal. Prior to disposal, a sample was collected and submitted for PCB analysis. The result was 1.5 ug/l (Arochlor 1254) and 1.5 ug/l (Arochlor 1260) for PCBs, which is below the Toxic Substance Control Act (TSCA) disposal limit of 50 ug/L.

Outside areas where the potential for spilled material existed were covered with polyethylene sheeting to prevent rain or other surface water from driving any contamination further into soil or carrying it to otherwise unaffected areas.

6.2.2 Cleaning Procedures

Based on the pre-cleanup test results and building geometry, remedial activities were divided into five separate sections; the primary vault area, loading dock area, adjacent external areas, the ventilation system, the remaining rooms and hallways of the first and second-floors (theater proper).

During the cleaning process, access was restricted from non-public access areas within the building to eliminate the potential for contamination of clean rooms. Doors and access ways to clean areas were sealed and isolated with barriers constructed of polyethylene sheeting and tape.

Primary Vault Area: The primary vault area consisted of the vault room, the electric room and the hallway connecting these rooms. All surfaces sampled within the vault area initially indicated concentrations above the re-occupancy criteria. In an effort to remove the gross contamination, these surfaces were cleaned using the double-wash/double-rinse procedure. Subsequent cleanings and limited surface removal of these surfaces still indicated levels above the re-occupancy criteria such that these surfaces were demolished, removed and shipped off site for disposal. The areas remaining above the re-occupancy criteria were encapsulated.

Loading Dock Area: The visibly contaminated wooden ramp attached to the loading dock was dismantled and disposed of as hazardous waste. The concrete loading dock and stairs were first cleaned using a Penetone S2389 solution via a high-pressure steam cleaning transformer. The rinseate was collected and shipped off site for disposal. The Penetone S2389 cleaning was successful at removing the gross contamination; however, post-cleanup wipe sample results were above the re-occupancy criteria. After a second Penetone S2389 cleaning, the sample results remained above the re-occupancy criteria. It was agreed that efforts short of demolition/removal would fail to meet the re-occupancy criteria; therefore, the loading dock stairs and concrete slab were demolished, removed and shipped off site for disposal.

The loading dock grade beam was scarified and industrial cleaned in an attempt to remove the PCB contamination. Although PCB concentrations were reduced, the levels remained above the established criteria. As a result, the grade beam and south wall abutting the primary vault at the loading dock were encapsulated.

Adjacent External Areas: As previously mentioned, exterior areas adjacent to the transformer vault, including the driveway, were excavated and grid sampled until the EPA cleanup criteria of 10 mg/kg was attained or soil removal was no longer feasible.

Ventilation System: Five of the ventilation systems originally failed the re-occupancy criteria. Three of the systems were successfully industrial cleaned and two systems were removed and shipped off site for disposal and replaced.

Theater Proper: All public access areas on the first and second-floors with initial wipe sample results $<1.0 \text{ ug}/100 \text{ cm}^2$ were industrial cleaned as a precautionary measure. Areas on the first and second-floor with pre-cleanup results $>1.0 \text{ ug}/100 \text{ cm}^2$ were cleaned via the double-wash/double-rinse procedure. A polyethylene and plywood barrier was constructed at the double doors between rooms 114 and 107 to isolate the areas of higher contamination. The areas to the south of the barricade (i.e., rooms 110, 111A, 113, electric room, vault and hallways) had initial results $>10 \text{ ug}/100 \text{ cm}^2$. After the initial cleaning, all areas except room 110, the electric room and vault tested below the re-occupancy criteria. When the second cleaning was unsuccessful in meeting the re-occupancy criteria, the walls in room 110 were demolished, removed and shipped off site for disposal. The walls in the electric room were encapsulated.

6.2.3 Excavation

After removing the transformer and cleaning the vault, the concrete floor was demolished and removed. The underlying soils were removed to a depth of five to seven feet. Under direction of the NYSOGS, soil removal was ceased to preserve the structural integrity of the building footings.

As previously mentioned, excavation was also performed in the driveway where oil had migrated during the incident. Soil was removed in one-foot increments and grid sampled for PCBs until the EPA cleanup criteria of 10 mg/kg was attained. After the removal of five feet of soil adjacent to the building in the southeast corner of the excavation, the PCB levels remained above the EPA cleanup criteria. Under direction of the NYSOGS, soil removal was ceased to preserve the structural integrity of nearby structures.

Both areas with soil concentration above the EPA cleanup criteria were double-lined with polyethylene sheeting, backfilled with pea stone and double-lined again with polyethylene sheeting. In the vault the excavation was capped off with one foot of concrete, and the outside excavation was capped off with fill and topsoil graded to divert rainwater away from the impacted area.

6.2.4 Encapsulation

Repeated efforts at cleaning the vault were unsuccessful, despite using different cleaning solutions. As a result, during a meeting on August 7, 1992 with representatives from the EPA, the NYSDCE, and the UCDOH, it was agreed that all concrete surfaces exhibiting levels of PCB contamination above the UCDOH criteria of $1.0 \text{ ug}/100 \text{ cm}^2$ would be encapsulated. After the encapsulation, the encapsulated area is periodically inspected and wipe sampled.

The areas that were encapsulated include the south wall of the loading dock abutting the primary vault, the lower portion of the exterior west wall of the vault, the loading dock grade beam, and the walls, floors and ceilings of the transformer vault, and the walls of the electrical room.

6.2.5 Post-Cleanup Analytical Summary

Primary Vault Area: As previously described, all surfaces within the primary vault were scarified, the floor slab was removed, and excavation was advanced to a depth of up to seven feet below grade. It was determined by NYSOGS engineers that further excavation might compromise the structural integrity of the building. Remaining contamination on the walls and ceiling has been encapsulated. The excavation has been lined with polyethylene and capped with one foot of concrete. The concrete cap and electric room have been encapsulated as well. The encapsulated area is periodically inspected and wipe sampled. If wipe samples produce results in excess of the established criteria, or damage is observed, a secondary encapsulant is applied to the contaminated area and it is re-sampled to ensure it meets the re-occupancy criteria.

Loading Dock Area: Remediation efforts in the loading dock area were generally unsuccessful in meeting the PCB cleanup target levels as all but one area was above the cleanup criteria. As such, the top slab of the loading dock was removed and replaced. In addition, the grade beam on the south wall abutting the vault was encapsulated. The encapsulated area is periodically inspected and wipe sampled. If wipe samples produce results in excess of the established criteria, or damage is observed, a secondary encapsulant is applied to the contaminated area and it is re-sampled to ensure it meets the re-occupancy criteria.

Adjacent External Areas: As previously described, remediation efforts were for the most part successful; no post-cleanup sampling results were above the PCB cleanup criteria for the outside excavation except the southeast corner of the driveway adjacent to the building foundation. This area was capped with polyethylene and asphalt and will be monitored by SUNY to ensure the asphalt remains intact.

Ventilation System: Remediation efforts in the ventilation system were successful; no post-cleanup sample results were above the PCB cleanup criteria.

Theater Proper: Remediation efforts in the theater proper were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Lower Roof: Several Wipe Samples in this area exhibited elevated levels of PCBs and prompted a decision to collect rain water/precipitation that was normally discharged into a nearby storm sewer. All precipitation was collected and processed on site through an activated carbon system, then analyzed for PCBs. Treated product was disposed of off site as a non-regulated waste. This interim measure was enforced until the roof was re-constructed in April 1994.

6.2.6 Re-Occupancy Date

In consultation with the NYSDOH and after review of the analytical data and cleanup activities, the UCDOH recommended Parker Theater be reopened for general occupancy on August 29th, 1993 with the exception of the former transformer vault room and electrical room. Any remaining contamination within these isolated and locked rooms is encapsulated and periodically tested/inspected.

7.0 Scudder Residence Hall

7.1 Pre-Cleanup Analytical Results

7.1.1 PCB Wipes

The majority of the samples collected from the basement, first-floor, second-floor and third-floor were below the re-occupancy criteria. However, samples from rooms B-1, B-6, B-7, B-8, 126, 201, 231, 307, 316, 317, 320, 321, 322, the Director's Office, the transformer vault, electrical room, janitor's closet and several locations in the hallways of the building were above the re-occupancy criteria.

7.1.2 Dioxin/Furan Wipes

Elevated dioxin/furan wipe sample results were detected in one sample located outside the vault (230 ng/m²). All other samples were below the NYSDOH re-occupancy criteria.

7.1.3 PCB Air Samples

Three of the initial PCB air samples revealed results above the established criteria of 1.0 ug/m³. The samples were from the basement (30 ug/m³), the first-floor (2.4 ug/m³), and the third-floor (2.6 ug/m³).

7.1.4 Soil Samples

Because the concrete or impacted surfaces were cleaned to acceptable levels, soil sampling was not warranted.

7.2 Remedial Activities

7.2.1 Initial Short-Term Measures

The remaining oil was pumped from the transformer, the transformer carcass was then triple flushed with diesel fuel per EPA guidelines and shipped off site for disposal at an approved facility.

The vault and electric room were temporarily sealed off using plywood, caulking and a polyethylene barrier.

Outside areas where the potential for spilled material existed were covered with polyethylene sheeting to prevent rain or other surface water from driving any contamination further into soil or carry it to otherwise unaffected areas.

7.2.2 Cleaning Procedures

Based on the pre-cleanup test results and building geometry, remedial activities were divided into two separate sections; the basement and the remainder of the building. During the

cleaning process, access was restricted to non-public access areas within the building to eliminate the potential for contamination of clean rooms.

Basement: PCB pre-cleanup wipe sample results for student rooms B-1, B-6, B-7 and B-8 were above re-occupancy criteria. All of the remaining student rooms were sealed with polyethylene sheeting to avoid cross-contamination during cleaning activities. All porous and structurally non-essential items (excluding doors, plumbing fixtures and other large non-porous items that were cleaned) were removed and disposed of.

Other than the sealed student rooms, all other areas were subject to a double-wash/double-rinse cleaning followed by an industrial wash on all horizontal surfaces. Prior to cleaning, all porous materials including carpets were removed and disposed of.

Remainder of Building: Where PCB pre-cleanup wipe sample results for student rooms in the first, second, and third-floor were below the minimum detection limit of $0.1 \text{ ug}/100 \text{ cm}^2$, the rooms were sealed with polyethylene sheeting to avoid cross-contamination during cleaning activities. Impacted student rooms and all public areas (hallways, lobbies, lounges, janitor's closets and bathrooms) were subject to an industrial wash. Prior to cleaning, floor mats were removed and disposed of.

A pre-cleanup wipe sample result from the Director's Office on the first-floor indicated a concentration above the cleanup criteria. As such, all structurally non-essential items were removed and disposed of, and the entire room was double-washed and double-rinsed followed by an industrial cleaning.

7.2.3 Encapsulation

Repeated efforts at cleaning the vault were unsuccessful, despite using different cleaning solutions. As a result, during a meeting on August 7, 1992 with representatives from the EPA, the NYSDEC, and the UCDOH, it was agreed that all concrete surfaces exhibiting levels of PCB contamination above the UCDOH criteria of $1.0 \text{ ug}/100 \text{ cm}^2$ would be encapsulated. After the encapsulation, the encapsulated area is periodically inspected and wipe sampled.

7.2.4 Post-Cleanup Analytical Summary

Vault: As previously described, it was agreed that all concrete surfaces exhibiting levels of PCB contamination above the UCDOH criteria of $1.0 \text{ ug}/100 \text{ cm}^2$ would be encapsulated. The encapsulated area is periodically inspected and wipe sampled. If wipe samples produce results in excess of the established criteria, or damage is observed, a secondary encapsulant is applied to the contaminated area and it is re-sampled to ensure it meets the re-occupancy criteria.

Basement: Remediation efforts in the basement of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Remainder of Building: Remediation efforts in the remainder of the building were successful; no post-cleanup sample results were above the PCB re-occupancy criteria.

Dioxin/Furan Wipe Samples: No post-cleanup dioxin/furan wipe sample results were above the re-occupancy criteria.

PCB Air Samples: No post-cleanup PCB air sample results were above the re-occupancy criteria.

7.2.5 Re-Occupancy Date

In consultation with the NYSDOH and after review of the analytical data and cleanup activities, the UCDOH recommended Scudder Hall be reopened for general occupancy on August 21st, 1992 with the exception of the transformer vault room. Any remaining contamination within this isolated and locked room is encapsulated and periodically tested/inspected.

8.0 All Other Buildings

Additional buildings were either minimally-impacted by PCBs from the incident or were closed for a period of time while testing was being performed on the transformers/vaults. The buildings included the Bardes House, Elting Gymnasium/Air Structure, Jacobson Faculty Tower, Haggerty Administration Building, Campus Health Center, Heating Plant, McKenna Theater, Old Main Building, Smiley Art Building, Sojourner Truth Library, Student Union Building, VandenBerg Learning Center and Wooster Science Building. The testing was conducted because the buildings were suspected of possibly having been impacted by foot traffic by the initial responders, or the status of the transformer in the building was unknown. At the completion of the testing and/or cleaning if warranted, all buildings met the re-occupancy criteria. By August 1994, any remaining PCB oil transformers on campus were removed and properly disposed of.

8.1 Pre-Cleanup Analytical Results

8.1.1 PCB Wipes

The majority of the wipe samples produced analytical results below the minimum detection limit. Those areas that had detectable PCB wipe sample concentrations were mainly confined to the basement areas within or adjacent to the transformer vault. These detectable levels of PCBs were believed to be the result of several years of normal operation and maintenance. In some vaults, small drops or stains of oil were observed, but their presence was believed to be unrelated to the incident. The PCB wipe sample results for each building area are as follows:

Bardes House: All PCB wipe sample results were below the minimum detection limit.

Elting Gymnasium/Air Structure: A wipe sample above the re-occupancy criteria was detected on the hallway floor outside the transformer vault. Other wipe samples were below the re-occupancy criteria.

Faculty Tower: There was no evidence of a power imbalance to the Faculty Tower transformer. However, because the transformer did contain PCB oil, it was removed from the building under the OGS contract and properly disposed of.

Haggerty Administration Building: There was no evidence of a power imbalance to the transformer in the Administration Building. However, because the transformer oil did contain PCB oil, it was removed from the building under the OGS contract and properly disposed of.

Health Center: Because the transformer oil did contain PCB oil, it was removed from the building under the OGS contract and properly disposed of.

Heating Plant: There was no evidence of a power imbalance to the transformer. However, because the transformer contained PCB oil, it was removed from the building under the OGS contract and properly disposed of.

McKenna Theater: Wipe samples taken in the lobby and in the aisle of the theater were below the re-occupancy criteria.

Old Library: A small leak of oil from the transformer's sample tap was observed during initial entry. A wipe sample taken of the oil-stained area on the transformer vault room floor produced a result above the re-occupancy criteria. Other wipe samples taken in the vault room and in the adjacent hallway also indicated results which exceeded the re-occupancy criteria. These results are believed to have been the result of tracking of oil by personnel performing regular maintenance. The results of all other wipe samples taken in the basement as well as those taken on the first and second-floors were below the minimum detection limit. Because the transformer oil did contain PCB oil, it was removed from the building under the OGS contract and properly disposed of.

Old Main Building: The wipe sample taken in the basement hallway was below the minimum detection limit.

Smiley Arts Building: Wipe samples taken in the hallway on the second and third-floor, and inside the transformer room produced analytical results above the re-occupancy criteria. Because the transformer oil did contain PCB oil, it was removed from the building under the OGS contract and properly disposed of.

Sojourner Truth Library: A wipe sample result from the service entrance hallway exceeded the re-occupancy criteria. However, the presence of Arochlor 1248 in the sample indicated that the source was not associated with transformer oil.

Student Union Building: The PCB wipe samples taken in the Student Union Building showed PCB levels below the re-occupancy criteria. Furthermore, there were no visible signs of a spill. No remediation was required. However, because the transformer contained PCB oil, it was removed from the building under the OGS contract and properly disposed of.

VandenBerg Learning Center: A result of a wipe sample taken from a desktop in room B4 indicated a level above the re-occupancy criteria. The presence of Arochlor 1248 in the sample indicated that the source was not associated with transformer oil. The result of a wipe sample taken outside the transformer vault was below the re-occupancy criteria.

Wooster Science Building: The analytical results of wipe samples taken in the basement hallway were all below the re-occupancy criteria.

8.1.2 PCB Air Samples

All PCB air sample results from the unaffected buildings were below the re-occupancy criteria of 1.0 ug/m³. Furthermore, the majority of air sample results were below the laboratory's minimum detection limit.

8.2 Remedial Activities

Based on the initial PCB wipe sample results, cleaning plans were developed for Elting Gymnasium, the Old Library, Smiley Arts Building, Sojourner Truth Library, and VandenBerg Learning Center. The plans were reviewed and approved by representatives from the Ulster County Health Department and New York State Office of General Services.

8.2.1 Cleaning Procedures

During the cleaning process, access was restricted to non-public access areas within the buildings to eliminate the potential for contamination of cleans rooms. Activities undertaken in each building are described below.

Elting Gymnasium/Air Structure: The transformer is located in room 115C. All surfaces in hallway 115B outside the vault were industrially cleaned. The louvered doors to room 113 were also cleaned.

The floors, stairs, and handrails up to rooms 116 and 121 were given industrial cleaning. The mat at the top of the stairs was removed and disposed of as a precautionary measure, and the doorknobs to the racquetball court were industrially cleaned. The transformer was de-energized and the transformer room floor was given industrial cleaning. The section of building used as an entrance was industrially cleaned from the entryway up to the vault.

The Elting Gymnasium/Air Structure was subsequently removed and no longer exists.

Old Library: The leak in the transformer that was observed at the sample tap during the initial entry was repaired by resealing the tap with Teflon Sealant. The stained concrete was chipped and removed and a double-wash/double-rinse procedure was performed on the entire vault room floor. The original transformer for the building was taken out of service and disposed of at an approved facility. Other miscellaneous equipment located within 15 feet of the vault room doorway was also disposed of at an approved facility. The 15-foot boundary was chosen based on EPA PCB spill cleanup guidelines.

The floor and horizontal surfaces in the hallway directly outside the vault were given an industrial cleaning. An industrial cleaning of all public areas in the basement was also conducted at the request of UCDOH officials.

A second double-wash/double-rinse was performed in the vault because the initial post-cleanup wipe sample of the floor exceeded the re-occupancy criteria. After the second double-wash/double-rinse, the post-cleanup wipe sample of the vault room floor was below the re-occupancy criteria.

Smiley Arts Building: The transformer vault, located in Room 4 of the basement, was cleaned for reasons unrelated to this incident via the double-wash/double-rinse procedure as was the hallway five feet in either direction. The transformer was de-energized prior to cleaning. Horizontal and other high contact surfaces further down the hallway were industrially cleaned, including fire extinguishers, doorknobs, and fire alarms. As a precaution, Room 2 was industrially cleaned because of an exhaust fan connected to the transformer vault. Hallways and stairwell exits on all levels and the penthouse were industrial cleaned.

Sojourner Truth Library: During the initial investigation, oily footprints were observed on the floor of Room 19 in the transformer vault. It is believed that this oil was inadvertently tracked beyond the vault room during the emergency response phase of the incident. An industrial cleaning was performed from inside the vault room to the building exit.

VandenBerg Learning Center: As previously noted, initial wipe sample results indicated the presence of Arochlor 1248 and not Arochlor 1260 associated with the initial incident. The floor of basement room B4, outside the transformer vault was industrially cleaned and all debris was removed and disposed of at an approved facility. High-contact horizontal surfaces in room B4 were also industrially cleaned, including the floor leading from the building entryway, down the staircase and into the vault.

8.2.2 Post-Cleanup Analytical Summary and Re-Occupancy Date

Based on post-cleanup PCB wipe and air sample results, all areas within the aforementioned buildings were below the established re-occupancy criteria and all of these other buildings were reopened for general occupancy by the UCDOH by February 5th, 1992.

9.0 Post-Event Monitoring

To monitor the effectiveness of the cleanup and the encapsulant applied, Clean Harbors developed a Periodic Sampling Plan in conjunction with UCDOH and the NYSDOH. This Periodic Sampling Plan includes periodic PCB wipe samples of the encapsulated surfaces and PCB air samples with the affected buildings. The established re-occupancy criteria for PCB wipe and air is used to measure the effectiveness of the cleanup and encapsulant.

<u>Sample Type</u>	<u>Re-occupancy Criteria</u>	<u>Agency</u>
PCBs wipe	1.0 ug/100 cm ²	UCDOH
PCB Air	1.0 ug/m ³	NYSDOH

Clean Harbors was contracted by NYSOGS under the direction of the UCDOH and the NYSDOH to continue the periodic wipe and air sampling from 1992 through 1996 in the affected buildings.

The NYSDOH conducted four quarterly wipe and air sampling events in the Bliss Hall, Coykendall Science Building, Gage Hall, Parker Theater, and Scudder Hall from March 1997 to February 1998, and subsequent quadrennial sampling events in 2001 and 2005. Clean Harbors conducted the recent 2009 quadrennial sampling event.

No post-event PCB air sampling result has been above the established criteria. Most of the post-event PCB wipe samples were below the established criteria with the exception of three 2005 NYSDOH wipe samples in the locked and isolated transformer vault at Parker Theater. These three 2005 wipe samples were slightly above the 1.0 ug/100 cm² established wipe sample criteria at 1.11, 1.14 and 1.33 ug/100 cm². The encapsulant within the locked and isolated vault at Parker Theater had developed micro voids. The encapsulant was reapplied to the walls and subsequent samples in the Parker Theater transformer vault have been below the established criteria. No other post-event wipe samples in the affected buildings were above the established re-occupancy criteria.

As established by the UCDOH and NYSDOH, all encapsulated areas in all the affected buildings are isolated and locked, inspected every six months, and these areas are air/wipe sampled every four years.

The Capen Hall transformer only received a temperature spike and may have not been affected by the 1991 incident. Based on wipe and air sampling data, it was not necessary to encapsulate the walls of the electrical vault room. Additional wipe samples were collected in 2001 and 2005 to assure that PCBs did not impact the walls and floor of the electrical vault room. The results of those samples were below the cleanup criteria.

10.0 Future Monitoring Summary

SUNY New Paltz will continue to carry out its routine monitoring and inspection program for the life of these buildings. The college will continue to use the stringent UCDOH re-occupancy criteria when samples are collected to evaluate the potential health risks from PCBs. In an agreement with the county and state health departments, the college is currently on a four-year testing cycle of encapsulated areas and air sampling in affected buildings. The encapsulant is also visually inspected every six months. All sampling and inspection information will be available on the SUNY New Paltz website and is shared with the UCDOH and NYSDOH. If any safety issues arise during the future monitoring or testing of any of these areas, the college will notify the entire campus community.